THE RELATIONSHIPS AMONG TEMPERAMENT, ATTACHMENT AND INITIAL ADJUSTMENT TO COLLEGE

by

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Dissertation submitted to the Faculty of the Graduate School of the University of Maryland in partial fulfillment of the requirements for the degree of Doctor of Philosophy
1989.

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ABSTRACT

Title of Dissertation: The Relationships Among Temperament, Attachment and Initial Adjustment to College

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Attachment theory suggests that the nature of the infant's first relationship with its primary caretaker is the foundation of normal development and influences adjustment in various domains throughout the life-span. Temperament research also indicates a relationship between temperament attributes and adaptation to change. The research in attachment and temperament has primarily focused on young children and adolescents. This research project sought to investigate the relationship of the constructs of attachment and temperament with initial adjustment to college. A total sample of 261 first semester college freshmen from two college/universities completed a series of questionnaires. The questionnaires included indices of students' perception of past attachment relationships (Parental Bonding Instrument; Parker, Tupling, & Brown, 1979), temperament profile

(Revised Dimensions of Temperament Survey; (Windle & Lerner, 1986) and adjustment to college (Student Adaptation to College Questionnaire; Baker & Siryk, 1986); Perceived Social Support Scale- Friends; Procidano & Heller, 1983). Through multiple regression analyses, results indicated that temperament (positive mood, low distractibility, and rhythmicity/ positive mood flexibility, rhythmicity-eating and persistence) correlated with attachment (care/low overprotection). Temperament was found to correlate with the five areas of adjustment (academic: distractibility, flexibility, activity level-general, rhythmicity-daily habits, persistence; social: approach, mood, flexibility, persistence; personal/emotional: flexibility; rhythmicity-eating, activity level-sleep, distractibility; goal attainment: mood flexibility, persistence, approach; perceived social support: mood, approach, rhythmicity-eating). Post hoc analyses indicated school and gender differences within specific domains of attachment and adjustment. High school grade point average was best predicted by the temperament dimensions of flexibility, mood, and persistence whereas first semester college grade point average was best predicted by the low distractibility, rhythmicity-sleep and activity level-sleep. For the relationship of attachment to college adjustment, care was the most significant predictor for the five aspects of adjustment. The results of this

research are supportive of the earlier work with children and adolescents and validates that attachment and temperament are influential variables in adjustment during the life-span.

DEDICATION

To the memory of my parents from whom I inherited the temperamental attributes to achieve.

ACKNOWLEDGEMENTS

There are many people who have been supportive throughout the dissertation process. I would like to acknowledge those people and let them know how grateful I am for their support.

My academic advisor, Dr. Hedwig Teglasi, for her guidance, encouragement, and friendship throughout my graduate program. Under her tutelage, I have gained discipline, persistence, and knowledge.

My statistical advisor, Dr. William Sedlasek, for insights and knowledge which were invaluable during the conceptualization and implementation of this project.

My friend, mentor and committee member, Dr. Gerald Oster, who provided the encouragement and structure I needed to complete this project.

The other members of my doctoral committee, Doctors Jean Hebeler and MaryLu McEwen for their feedback which improved the quality of this work.

To my dearest friend, Dr. Janis Caro who has shared so much with me both professionally and personally. Without her humor and empathy, the completion of this dissertation would not have been possible.

My dear friends and colleagues Pam Herzberger, Dr. John Wisor, Dr. Sidney Manning and William Kachman for their support and friendship.

I would like to especially thank Dr. Marie van Melis-Wright who was always willing and available to support and encourage me from the start to the completion of this project. Her confidence, love and superb cooking gave me the strength to get through this process.

My friend Robert Wright, for his patience and help in editing and printing this manuscript.

I would like to give special thanks to my daughter, Kimberly McAndrew and my husband, Clayton Miller for sharing their love, support, humor and providing the necessary distractions during this long and difficult period.

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CHAPTER I

Introduction

The nature of human relationships has been a source of intense investigative research that spans several decades. Theories well documented in developmental psychology suggest that the foundation for interpersonal relationships begins in early childhood (Erikson, 1950, 1959; Freud, 1949). Attachment theory has served as the springboard for empirical investigations in an attempt to examine the infant's first relationship with its primary caretaker (Bowlby, 1969). Attachment research maintains that the nature of the infant's first relationship is the foundation of normal development and influences other aspects of child development. Social competency (Matas, Arend, & Sroufe, 1978; Waters, Wippman, & Sroufe, 1979), persistence (Frodi, Bridges, & Grolnick, 1985) social motives (Sroufe, 1983), problem-solving (Joffe & Vaughn, 1982; Matas, et al., 1978), time spent in exploratory play (Arend, Grover, & Sroufe, 1979; Henderson, 1978), attractiveness to peers (Jacobson & Willie, 1986) and peer leadership (LaFreniere, 1983) are but a few of the developmental domains empirically researched as correlates of attachment.

The construct of attachment varies in its conceptualization. Models defining the initial relationship include an ethological paradigm (Bowlby,

1969), a psychoanalytic model (Blatt, 1974; Freud, 1949; Kernberg, 1972) and social learning theory (Gerwirtz, 1976). Regardless of the conceptualization espoused, the underlying assumption of all the models is that the initial relationship of the infant with its primary caretaker sets the stage for future social interactions from infancy to adulthood. Investigations have revealed a relationship between insecure attachment and psychopathology (Bowlby, 1977; Kesterbaum, 1984). The literature abounds with research investigating the relationship between depression and parental loss (O'Neil, Lancee & Freeman, 1986; Perris, Holmgren, Von Knorring, & Perris, 1986); separation in early childhood (Roy, 1981, 1986) and the role of parent-child relations in the etiology of depression (Blatt, D'Affitti, & Quinlan, 1976; Blatt, Wein, Chevron, & Quinlan, 1979; Burbach & Borduin, 1986; Parker, 1979, 1981, 1983; Perris, Arrindell, Perris, Eisemann, Van Der Ende & Von Knorring, 1986; Radke-Yarrow, Cummings, Kucznski, & Chapman, 1985). With adequate attachment behavior, Bowlby (1977) postulates that there exists a significant correlation between the infant's experiences with parents and the individual's later capacity to develop affectional bonds. He adds that the individual has developed a "representational model" (p.206) that elicits self-confidence in times of stress and the ability to accept help from others in time of need. Bowlby explains that whatever the representation

model of attachment figures and of self that are established during the developmental stages of childhood and adolescence, these representations are likely to remain relatively unchanged throughout adulthood. In terms of inadequate attachment, Bowlby emphasizes a causal relationship between pathological development of attachment behavior and the inability to maintain affectional bonds with others.

More recently, developmental psychologists and researchers have focused on temperament or behavioral style as a variable influencing the quality of human relationships. Temperament has been defined as the characteristic style of an individual in regard to how an individual approaches and responds to people, situations and tasks (Thomas & Chess, 1977). Chess (1986) emphasizes that temperament differs from ability, which underscores the what and how well of behavior. Further, temperament differs from motivation which, explains the why of behavior. Nine dimensions of temperament or behavioral style outlined by Thomas & Chess (1977) include rhythmicity, activity level, adaptability, approach/withdrawal, mood, threshold of responsiveness, intensity of reaction, distractibility, and attention-span. Temperament helps to understand how individuals approach and respond to new social situations, tasks, and physical environments in regard to ease of adaptation, the intensity and character of their mood

expression and persistence (Chess, 1986). Further, Thomas, Chess and Birch (1963) reject the "dichotomy of child versus environment" (p.184) hypothesis and focus on an interactionist framework that recognizes that psychosocial adaptation is the product of "goodness of fit" between intraindividual characteristics and the demands present in the environment. Simplistically speaking, if the physical and social demands and the expectations of the environment are in line with the individual's capabilities, abilities, motivations and temperament, good adjustment and development will result (Chess, 1986; Lerner, 1984). Likewise, if there is not a good fit between intraindividual characteristics and environmental demands and expectations, poor psychological functioning and development will occur.

Research by Dunn and Kendricks (1980, 1982) supports the supposition that temperamental differences in early childhood are related to the development of psychopathology and to differences in children's vulnerability to stress as well as the quality of an infant's relationship with mother. Analyses of the data indicated that differences in temperament were associated with differences in interaction between mother and child over time. Temperament cannot be considered a "characteristic of the child independent of his or her particular family relationships" (p.495) but rather closely tied to his or her relationship with the mother.

Systematic investigations along this line also indicate that children with specific temperaments are more vulnerable to the effects of change in the family environment, such as the birth of a sibling.

Using the "goodness of fit" paradigm, Dunn and Kendricks' (1980, 1982) work provides a different perspective in which to view the etiology of attachment or the quality of relationship between the infant and mother. Dunn and Kendricks' (1980) data indicated that mothers who rated their children as negative or "not fitting in the family system" were helped less, received less attention and interacted less with their own mothers. The presence or absence of these maternal/infant interactions can be considered to have a key role in determining the quality of the mother/infant relationships and how the developing infant will react to the demands and expectations set forth in the family environment and how the developing infant will establish patterns of social interaction. In essence, temperament plays a key role in determining maternal responses toward the signaling infant and the development of the representation model of the mother/attachment figure by the child. This research shows the importance of considering the interplay of the two concepts, temperament and attachment, on human development.

The surge of interest in researching the role of temperamental attributes in child development stems from

its predictive power as a variable in adjustment (Martin, et al; 1983; Garrison, Earls & Kindlon, 1984), achievement (Martin, Nagle, & Paget, 1983) and developmental psychopathology (Barron & Earls, 1984; Korn, 1984; Thomas & Chess, 1984). Dimensions of temperament identified as factors related to positive personal and social functioning for early and late adolescents (11 and 20 years of age) include rhythmicity of biological functioning, high attention span and persistence, low distractibility, low intensity reactions, high approach and positive mood. Arhythmicity, low attention and persistence, high distractibility and intensity and negative mood are the temperamental attributes associated with negative social and personal adjustment (cf., M. Windle, K. Hooker, K. Lenerz, P. East, J. Lerner & R. Lerner, 1986).

Theorists adopting a life-span perspective question the relationship between early parental bonding or infant attachment and the role of temperamental attributes in regard to the implication for adult development (Antonnucci, 1976; Baltes, Reese & Lipsitt, 1980; Chess, 1986; Kalish & Knudtson, 1976; Lerner, 1982; Lerner & Ryff 1978; Pruchno, Blow & Smyer, 1984; Troll & Smith, 1976; Weintraub, Brooks & Lewis, 1977). The life-span approach to development, or life-span developmental psychology as labeled by Baltes and his associates (Baltes, 1973; Baltes & Schaie, 1973; Goulet & Baltes, 1970; Huston-Stein &

Baltes, 1976), is defined as an orientation which is concerned with the "description, explanation, and modification of developmental processes in human life" (Baltes, et al., 1980, p.67) spanning from birth to death. The assumptions underlying this orientation proposes that behavior-change processes can occur at any point in life and that although behavior-change can be influenced by biological growth, it is not the sole impetus for behavior-change. The framework of the life-span perspective centers around determining the form and course of behavioral changes as they occur during the life course and to "establish the pattern of their temporal order and interrelationships" (p.70). Life-span proponents do not accept the theoretical perspective that developmental dynamics are unidirectional but rather that there are both continuities as well as discontinuities in the developmental process (Lerner & Ryff, 1978). Further, it is the "continuation of processes whose directions and quality were determined in earlier childhood periods" and the discontinuity due to cultural/historical development as well as environmental influences that account for intra-individual differences and multidirectionality of change processes.

Lerner (1987) uses the terms embeddedness and dynamic interactionism to explain that development occurs in the context of both developmental and nondevelopmental levels. Further, development at one level is influenced by

development at other levels. The theoretical and practical implications of such an orientation, Lerner proposes, is that there is a potential for plasticity and a potential for intervention and that the individual is seen as a producer of his/her own growth (Lerner, 1987).

Adjustment to novel situations is the cornerstone to both the theory of attachment and to the construct of temperament. Attachment theory postulates that there should be a positive relationship between the quality of the initial infant-caregiver relationships and adjustment to new interpersonal situations (Waters & Sroufe, 1979, 1983). Proponents of intra-individual styles suggest that temperamental attributes which are consonant with environmental demands and expectations predict psychosocial adaptation and adjustment (Chess, 1986; Graham, Rutter & George, 1973; Klein & Rennie, 1985; Thomas & Chess, 1977; Thomas, Chess & Birch, 1963) and these differences may modify the quantity and quality of relationships with significant others (cf., M. Windle and R. M. Lerner, 1986).

As stated earlier many researchers investigating the constructs of attachment (Antonnucci, 1976; Knudston, 1976; Lerner & Ryff, 1978; Pruchno, Blow & Smyer, 1984; Troll & Smith, 1976) and temperament (Antonnucci, 1976; Chess, 1986; Korn, 1984; Lerner, 1982; Thomas & Chess, 1984) have employed the life-span perspective in the design and implementation of their research. Many

difficulties have obstructed scientific investigation into the process of attachment and the role of temperament in adulthood. Defining and unifying the components of the attachment process from infancy to adulthood stands as a major obstacle for developmental investigators and theoreticians. Behavioral manifestations of attachment and temperament change with maturation which makes it difficult to establish a definitive course through development (Chess, 1986; Waters & Sroufe, 1983). Investigative efforts continue despite the problems. Advocates of this line of research stress the importance of understanding the developmental influence of attachment and temperament and its implications for later adult social interaction (Bowlby, 1977, 1982, 1984; Chess, 1986; Lerner & Ryff, 1978; Thomas & Chess, 1977; Weiss, 1982). The present study was an attempt to clarify the role of attachment and temperament in adulthood. It is only recently that serious empirical efforts have been made to validate the existence of behavioral referents theoretically described as components of adult attachment. Likewise, research efforts to investigate the implication of temperament on attachment are few and generally focus on mother-infant dyads. Empirical examinations of the role of temperament as it relates to adaptation or adjustment in childhood are growing in numbers but efforts to extend the developmental research into adulthood are slow in coming.

Purpose of the Study

The purpose of this research was to examine three areas regarding the implications of early relationships and temperament on young adult development. Specifically, the relationships of interest were the relationship between temperament and the perceived quality of the early attachment relationship, the relationship between temperament and initial adjustment to college and the relationship between the perceived quality of early attachment relationship and adjustment to college For the purposes of this investigation, adjustment to college is the ability to adjust to novel situations. As such, this research was an attempt to investigate and extend two important developmental constructs into adulthood based on the framework of life-span psychology.

Research Questions

There were three broad areas of inquiry set forth in this research design investigating the implications of early relationships on adult development. The first area addressed the relationship between temperament and the perceived quality of the early attachment relationship. The second area addressed the relationship between temperament and initial adjustment to college. The third area explored the relationship between the perceived quality of early attachment relationship and adjustment to

college. Exploration of the three relationships were made through specific hypotheses related to each area.

The research and development on a model for attachment and the effects of temperament in adulthood is in an exploratory phase. Verification of the research questions set forth in this project will add supportive evidence to the theory that there exists a significant relationship between parental bonding and temperament which in turn predicts positive social functioning in interpersonal relationships in adulthood.

CHAPTER II

Review of the Literature

To extend the theoretical proposition that early social relations are relevant to the quality of adult interpersonal relationships warrants a thorough and critical investigation of the major theories of human attachment through infancy to early adulthood. It is imperative that such an investigation include an intense examination of the effects of individual behavioral style on the process of attachment in early childhood development. Further it is necessary to explore the impact of temperamental attributes to psychosocial/socioemotional functioning through infancy to early adulthood. To understand the importance of evaluating these constructs during the developmental stage of early adulthood, it is essential to preview the life-span view of human development. With this in mind, the format of the literature review will begin with the major theories of attachment through infancy to early adulthood. Following attachment, the concept of temperament will be addressed as it influences child, adolescent and adult development. The material is organized as follows: (a) life-span development, (b) attachment: theories and empirical research, and (c) temperament: theories and empirical research .

Life-span Development

The life-span perspective of human development postulates that there is potential for change in the developmental process throughout the human life cycle. As such, change is multidirectional and multidimensional stemming from the biological and ecological features inherent to humans (Baltes, 1979). The model recognizes both continuities and discontinuities in the developmental process. Lerner and Ryff (1978) propose that human development is a continuous process "whose directions and quality were determined in earlier childhood periods" and the discontinuations of developmental patterns are related to cultural, historical, and environmental influences (p.4). The model is reciprocal and recognizes that individuals act on the environment and produce novel behavior outcomes (Baltes, 1979). Lerner (1982, 1987), a strong advocate of the life-span perspective of development, suggests that individuals, across the life span, are both products and producers of the multi-level contexts within which they exist. As producers of their behavior, adaptive development is contingent upon "goodness of fit" between person and context (Lerner, 1984; Thomas & Chess, 1977, 1980, 1981). Behavioral characteristics which define individuality promote differential reactions during the socialization process of the developing child. Reactions of others serve as feedback to the child, refining individuality and

providing a basis for further development. Adaptive psychosocial functioning is a result of the match between a child's characteristics of individuality and the demands of the setting. Lerner (1982) adds that evidence of "goodness of fit" comes from support and positive feedback from the socializing environment.

The life-span view of human development is useful to investigate the concept of attachment (Antonnucci, 1976; Knudston, 1976; Lerner & Ryff, 1978; Pruchno, Blow & Smyer, 1984; Troll & Smith, 1976) as it is influenced by temperament (Antonnucci, 1976; Lerner, 1982; Lerner & Ryff, 1978). Antonnucci (1976) postulates that "accepting the concept that attachment develops over time does not necessarily commit one to the view that behaviors manifesting attachment will be unitary or only quantitatively different over time" (p.14). Rather Antonnucci (1976) asserts that "attachment must be traced ontogenetically in order to assess qualitative as well as quantitative changes....it is essential that any analysis of the development of attachment includes the many factors impinging upon the individual" (p.140). Utilizing the life-span development perspective to investigate attachment and temperament has important implications in terms of theory, research and intervention. The assumptions that life-span development is both multi-directional and multi-dimensional demand substantive collaboration with scholars from several disciplines and

necessitates methodologies and research designs that account for the complex interrelations. Finally, the life-span perspective of human development espouses that there exists a potential for change and change can occur by individuals acting as producers of their development in order to produce a match between the individual and the environment.

Attachment: Theories and Empirical Research

Freud's (1935) psychoanalytic theory of development provided the framework for research on attachment. His early lectures underscore the importance of the "mother-infant bonding" process in the total development of personality (Noam, Higgins & Goethals, 1982). It is in Lecture XX that Freud (1935) directly addresses the importance of the mother-infant relationship in developmental terms when he stated "the desire to suck includes within it the desire for the mother's breast, which is therefore the first object of sexual desire; I cannot convey to you any adequate idea of the importance of this first object in determining every later stage adopted, of the profound influence it exerts, through transformation and substitution upon the most distant fields of mental life" (p. 275). Freud's theoretical format was defined as an intrapsychic model of development; nonetheless, his theory laid the foundation for future developmental theorists to incorporate social

dynamics into the development of personality and to acknowledge the importance of early developmental patterns as a template for the quality of interpersonal relations in adulthood.

Erikson's (1950) life-cycle conceptualization of development put Freud's theory of internal psychological forces into a social context. It was Erikson's psychosocial theory of development that put the spotlight on the meaning of the mother-infant contact because it is the first interpersonal experience for the developing infant which sets the stage for all relationships in life (Noam et al., 1982). As a stage theorist, Erikson maintained that successful resolution of issues pertinent to each psychosocial stage charted the course of later development. Likewise, unsuccessful resolution or disturbances in later development could be expressions of earlier difficulties with the initial social relationship established between the infant and its primary caretaker.

While many of the early psychoanalytic theorists hypothesized about the ramifications of early child development on later adult functioning, noted researchers in child psychiatry systematically investigated the nature of the infant-caregiver relationship. In studying infants in a foundling home, Spitz (1945) noted that infants who had been separated from their mothers at age three months demonstrated progressive deterioration in cognitive and social development. Further, a follow-up study (1946b) of

these infants reflected an extraordinarily high mortality rate. Approximately one-third of the original infants involved in the study died by the end of their first year. Spitz (1946b) reported the remaining sample population to be severely arrested in both psychological and cognitive development. He postulated this retardation to be a byproduct of the early separation and the absence of the primary nurturing relationship. The term anaclitic depression was coined by Spitz (1946a) when he observed that infants in a nursery within a penal institution, separated from their mothers in the second six months of life, suffered from severe depression. Spitz concluded that the syndrome of anaclitic depression was a result of the withdrawal of the initial mother-infant relationship. Spitz has been credited with advancing the field of infant research, particularly infant attachment to the mothers and the importance of continuity of interactions with a single person (Brody, 1982).

Like Spitz, Bowlby's conceptualization of attachment developed from his research on the adverse effects of institutional and hospital care on infants and young children (cf., Bretherton, 1985). Bowlby's theory of attachment was developed as an alternative to psychoanalytic theories of object relations (Bowlby, 1982) with theoretical roots from ethology, control systems theory, and cognitive science (cf., Bretherton, 1985). Bowlby's (1969) contemporary theory of attachment

developed around the construct of evolutionary theory. That is, the initial attachment relationship with the primary caretaker serves the function of reducing the risk of danger to the vulnerable human infant (Bowlby, 1984). It is the "attachment behaviors" that result in an infant acquiring or maintaining proximity to the primary caretaker or the individual identified who is perceived to buffer the infant from impending danger (Bowlby, 1982). Attachment behaviors are most likely manifested when the infant is sick, fatigued or frightened and is eased by comforting and caregiving. Visual tracking, crying, smiling and noncrying vocalizations are the initial signaling behaviors of the infant to induce proximity and contact (Ainsworth, 1972, p.23). Bowlby argued that human infants must be equipped with a stable behavioral system that functions to elicit proximity from the primary caregiver and that attachment behaviors activate a complementary behavioral system in the caregiver (maternal behavior). The reciprocal behaviors of the infant and caregiver are adaptive in an evolutionary sense that are protective in nature (cf. Ainsworth, 1978).

Bowlby (1969) divides the development of attachment behavior in human infants into four phases. Phase I, Orientation and Signal without Discrimination of Figure, spans from birth to approximately 12 weeks of age. During this phase the infant is not able to discriminate among people, yet will demonstrate attachment behaviors in an

attempt to secure proximity. Orientation, tracking, grasping and reaching, smiling and babbling are included in the repertoire of behaviors to increase the amount of time the infant is in proximity. During Phase II, Orientation and Signals Directed towards One (or More) Discriminated Figures(s), the infant "continues to behave towards people" (p.266) as it did in Phase I but demonstrates differential responsiveness toward the mother-figure. Phase II continues until approximately 6 months of age. Between 6 and 7 months of age, the baby is said to enter Phase III, Maintenance of Proximity to a Discriminated Figure by means of Locomotion as well as Signals. Bowlby (1969) postulates that it is during this phase that attachment to the mother-figure is clearly visible. The infant is more discriminative in its responses to others and more active in the process of securing and maintaining proximity. It is during this stage that the primary attachment figure is used as a secure base from which to explore the environment. During this time frame of development, behavioral systems of the infant are "goal corrected". Bowlby (1969) uses "goal-corrected" to define behavioral systems that are based on set-goals (Ainsworth, Blehar, Waters, & Wall, 1978). At this level the behavioral systems are "purposive and flexible" (Ainsworth et al., p.10). What this means is that the setting of the set-goal (degree of proximity) to the mother-figure may vary depending on

specific circumstances. However when the infant exceeds the specified set-goal or proximity boundaries, attachment behaviors come into play to re-establish specified degrees of proximity. Phase IV marks a heightened sophistication and increased flexibility in the infant's ability to interpret the attachment figure's feelings and motives. Bowlby (1969) labelled the last phase of attachment Formation of a Goal-Corrected Partnership. During this phase there is a understanding by the young child of the attachment figure's set-goals. Bowlby (1969) estimates that this stage starts at around age two or three, marking the the beginning of the partnership between the child and the caregivers.

Bowlby (1969, 1984) maintains that the child builds a representational model of self and attachment figure based on the nature of their partnership. A child's confidence in the mother-figure's accessibility and responsiveness greatly affects the setting of the set goal (cf., Ainsworth, Blehar, Waters & Wall, 1978). That is, if a child is secure in his/her expectations of mother's accessibility and responsiveness to his/her signaling, the infant can be "bold in his exploration of the world, cooperative with others....and sympathetic and helpful to others in distress" (Bowlby, 1984, p. 13). He adds that if attachment behavior is not responded to in a supportive manner (i.e., reluctantly or delayed) and the attachment figure is perceived as inaccessible or unresponsive, the

child is likely to become anxiously attached and apprehensive. The child will therefore set narrow set-goals that interfere with progressive exploration of the environment then in turn affect cognitive and social development (cf., Ainsworth et al., 1978). In sum, the central tenet of Bowlby's theory of attachment is that individual differences in the quality of attachment are the byproduct of early care (availability and responsiveness of caregiver) and that infants who have access to the primary caregiver whose responses were prompt, reliable and geared to the infant's signals of need or distress are more secure in their attachment relationship. The implications of secure attachment then are that the infant develops confident expectations regarding the caregiver and the environment.

While Bowlby's attachment theory was hailed for its contemporary view of the development of primary relationships in infancy, presenting an alternative to psychoanalytic theories of object relations and the concept of dependency (Bowlby, 1982), it was also criticized for its limitations. The major limitation of Bowlby's model appears to be in narrowness of its function (Joffe & Vaughn, 1982). The behavioral system espoused by Bowlby (1969) does not account for other behaviors nor the interactions and motivation infants have toward their environment, which are not activated for the sole purpose of seeking or maintaining proximity (Waters, 1980). Engel

(1971) states that primary stimuli for determination of the set-goal in the behavioral system are external events pertinent to the mother-infant relationship. Ainsworth (1973) postulates that the most important function of the attachment behavioral system is to monitor the active process of exploration of the environment and to find a balance between the behaviors of exploration and proximity seeking in response to various contingencies (cf., Joffe & Vaughn, 1982). Further, Ainsworth (1975) adds that as maturation occurs there are phases in which the infant moves away from the primary attachment figure in order to explore the world.

Bowlby's (1969) formulation of attachment behavior was influential in Ainsworth's (1963, 1972, 1973) development of a model of attachment that accounts for an interplay of behavioral systems. Ainsworth's reformulation of the tenet of attachment makes clear that there is a distinction between attachment as a bond between mother and child and attachment behaviors which serve to mediate the relationship between mother and child (Ainsworth, Blehar, Waters & Wall, 1978). She also observed that, despite the striking vicissitudes of attachment behaviors, attachment behavior appears relatively stable over time and distance (cf. Joffe et al., 1982): Ainsworth (1972) states "We must infer the existence of an attachment bond from a stable propensity over time to seek proximity and contact with a specific

figure, even though attachment behavior may appear only intermittently or, in the case of major separations, be absent for long periods. The term attachment refers to the class of diverse behaviors which promote proximity and contact, at first without discrimination of the figure, but later with increasing specificity in regard to the figure to whom the child is becoming attached" (p.123). Further, she emphasizes that "attachment as a construct must be viewed as an inner organization of behavioral systems which interact with environmental conditions and other "situational" intraorganismic conditions - neurophysiological, hormonal, receptor process - to activate, terminate, and direct attachment behavior in any specific situation" (Ainsworth, 1972, p. 123). The construct of attachment from this perspective can be considered an intervening variable.

Ainsworth's (1979) empirical research efforts were directed toward investigating the organization of attachment patterns, differential experiences associated with the development of various attachment patterns, maternal responsiveness during mother-infant interactions and the implication of emerging attachment patterns on later development. In an effort to systematically assess these research tenets, Ainsworth and associates developed and employed a laboratory procedure known as the Strange Situation (Ainsworth et al., 1978, Ainsworth & Bell, 1969). The structure of the Strange Situation involves a

standard series of eight episodes in which infants are observed in an unfamiliar playroom. In an effort to assess the balance between attachment behaviors and exploration, the infants are provided an opportunity to explore toys and to interact with an unfamiliar adult in the presence and in the absence of the mother under increasingly stressful conditions. An outline of the episodes utilized in the strange situation is presented in Table 1. The Strange Situation as a research technique measures behaviors reflective of the attachment relationship under standardized conditions. That is, if an adequate relationship exists between the infant and caregiver, the infant should demonstrate feelings of comfort during episodes of low stress (mother and experimenter present), and heightened levels of discomfort during episodes of high stress (infant and experimenter alone, infant alone). Conversely, apathy during stressful episodes or discomfort during episodes of low stress would be indicative of non-optimal attachment between infant and caregiver. Three patterns of behavior emerged during the reunion episodes of the Strange Situation that allowed for attachment behavior to be organized on qualitative dimensions (secure vs. anxiety) defining the attachment relationship to the caregiver (see Table 2). Infants securely attached to the parent demonstrated proximity seeking and contact upon reunion with a gradual return to exploratory play (Group B). This group, secure in their

Table 1

Strange-Situation Procedure

Episode	Person(s) Present	Description
1	mother and child	mother and child are introduced to the room by the observer
2	mother and child	mother and child left alone
3	mother, child, and stranger	stranger is introduced to to room with mother and baby, stranger initially is quiet then converses with mother and subsequently with baby
4	child and stranger	mother leaves and stranger interacts with baby
5	mother and child	mother is reunited with baby and stranger leaves
6	child	mother leaves, child is left alone
7	child and stranger	stranger is reunited with child
8	mother and child	mother and child are reunited with stranger absent

Note: Table adapted from Ainsworth et al., 1978.

Table 2

Patterns of Attachment

Secure Attachment

A. Caregiver is a secure base for exploration
   1. readily separates to explore toys
   2. affective sharing of play
   3. affiliative to stranger in mother's presence
   4. readily comforted when distressed (promoting a return to play)

B. Active in seeking contact or interaction upon reunion
   1. If distressed
      (a) immediately seek and maintain contact
      (b) contact is effective in terminating distress
   2. If not distressed
      (a) active greeting behavior (happy to see caregiver)
      (b) strong initiation of interaction

Anxious/Resistant Attachment

A. Poverty of exploration
   1. may mix contact seeking with contact resistance (hitting, kicking, squirming, rejecting toys)
   2. may simply continue to cry and fuss
   3. may show striking passivity

Table 2 - (cont.)

Anxious/Avoidant Attachment

A. Independent exploration
   1. readily separate to explore during presentation
   2. little affective sharing
   3. affiliative to stranger, even when caregiver absent (little preference)

B. Active avoidance upon reunion
   1. turning away, looking away, moving away, ignoring
   2. may mix avoidance with proximity
   3. avoidance more extreme on second reunion
   4. no avoidance of stranger

Note: Adapted from Ainsworth, Blehar, Waters & Wall, 1978

attachment to the caregiver, demonstrates a balance between exploration of the environment and seeking periodic proximity to the caregiver. Anxiety is not characteristic of this group until there is prolonged absence of the caregiver. Group B infants represent a normative sample for one-year old children in terms of size and characteristics (Joffe et al., 1982). Group C infants are characterized as anxious and immature, demonstrating heightened attachment behaviors upon reunion and distress during separation. Infants are also

classified under Group C if they demonstrate angry resistance toward the caregiver upon reunion. It is the insecure-ambivalent behaviors of the infant toward the caregiver that characterize Group C. Avoidant behaviors demonstrated by infants in Group A ignore caregiver or actively avoid the caregiver during the reunion episodes. Group A are classified as anxious and insecure as manifested through avoidant behaviors (Main, Kaplan & Cassidy, 1985).

The implications of infants classified as resistant (Group C) or avoidant (Group A) toward the primary caretaker are nicely summarized by Joffe and Vaughn (1982). They state that resistance toward the mother in that strange situation inhibits exploration of the immediate environment and subsequent learning because of the focal concern with the mother. This group of infants continues to show interest in others in their environment and are able to express their anger. On the other hand, avoidant infants may be at risk for losing the capacity for closeness or intimacy and for forming relationships. Sroufe and Waters (1977) are more specific in their predictions. They suggest that avoidant infants are likely to be self-isolates while resistant babies may not be well-received by their peers in preschool because of their low self-esteem, social hesitancy and lack of object skills. Securely attached infants, on the other hand, are expected to be competent and confident in their

interactions with others and well-liked and sought after by their peers.

Main et al. (1985) agree that the internal working model of the infant-parent relationship evolves out of the "attempts and outcomes" (p.75) of the infant's efforts to regain proximity of the parent. They define internal working models as mental representations that involve affective and cognitive components that are influential in determining behavior. Internal working models of attachment relationships are said to form at some level around the first year of life with a particular parent. More importantly, in terms of later development, Bretheron and Waters (1985) hypothesize "internal working models of relationships define rules for the direction and organization of attention and memory, rules that permit or limit the individual's access to certain forms of knowledge regarding the self, the attachment figure, and the relationship between the self and the attachment figure" (p. 77) . Further, these rules will be "reflected in the organization of thought and language as it relates directly and indirectly to attachment" (p.77). This conceptualization of an internal representation of the parent-infant relationship emphasizes that the internal representation is a working model that can be altered only in response to changes in concrete experience and that they serve to modulate the accessibility to information.

Empirical research by Ainsworth and associates (Ainsworth, 1972; Ainsworth & Bell, 1970; Ainsworth, Blehar, Waters & Wall, 1978; Ainsworth & Wittig, 1969, Bell & Ainsworth, 1972; Bell, 1970) to investigate the construct and predictive validity of attachment is expansive and beyond the scope of this literature review. Therefore, a selective review of studies will be presented that relate to the hypothesis that the quality of attachment relations forms the foundation for an understanding of self and of ways in which attachment relations influence the development and quality of relationships with others. The research efforts by Ainsworth and associates (e.g., Ainsworth et al., 1978) established a framework for empirical investigation of the theory of attachment. Findings demonstrating similar categorical groups of attachment behaviors in both the naturalistic setting of the home as well as in a laboratory environment validated the perspective that attachment behavior was related to the enduring bond which developed through the caregiver-infant relationship (Ainsworth, 1979). Further, significant relationships between feeding patterns, mother's availability and responsiveness to infants' signals and security of infant's attachment strengthens the belief that attachment is a complex interactional process between the mother-infant dyad. While Ainsworth (Ainsworth, 1982; Ainsworth et al., 1978) asserts that there is stability in

the quality of attachment patterns and that early experiences are influential in both cognitive and emotional development, the question remains as to how patterns of attachment are manifested through later stages of development.

Research by Belsky, Garduque and Hrncir (1984) assessed the associations between security of attachment and the quality and quantity of exploration by measuring six levels of play. Using the Strange-Situation, 60 infant-parent dyads were tested when the infants were between 12 and 13 months of age. As predicted, distinct differences were found between all three classifications of infants in regard to individual differences in attachment. Secure infants (Group B) demonstrated greater levels of competency and flexibility in play than Group C infants (anxious, ambivalent). Group C infants evidenced the largest discrepancy between levels of play as their interest in exploration was limited by their preoccupation with their caregiver. Infants classified as Group A (anxious, avoidant) demonstrated competence and flexibility but to a lesser degree then secure infants. The results of research indicate a positive relationship between performance and competency as a function of secure attachment. Belsky and his associates state that these results "support the contention that infants whose attachments to their parents provide a secure base from which to explore experienced more freedom to attend to the

environment" and therefore were able to engage in cognitively sophisticated exploration and to spontaneously deploy their cognitive competence in free play in low and high stress situations (p. 415).

Sroufe (1983), in his research on infant-caregiver attachment and patterns of adaptation in preschool, underscores the importance of understanding that all infants attach, all toddlers individuate, all preschoolers relate at some level to others and develop concepts of themselves. However, what is of particular interest is the quality of adaptation with respect to these developmental issues. He adds in regard to a developmental phase of attachment that no stage is passed or failed. Rather "behavior organization evolved with respect to an early developmental issue lays the ground work for subsequent behavioral organizations. The nature of earlier behavioral organization, with attachment promoting exploration, makes the smooth movement to more autonomous functioning virtually inevitable" (p.46). In addressing maturation, Sroufe maintains that "a prototype behavioral organization will be manifest in different, though coherent forms, in different circumstances at different points in development" (1983, p.45).

Waters, Wippman and Sroufe (1979) agree that in relation to attachment and adaptation, continuity in development is best measured in patterns of individual adaptation in regard to age appropriate issues. Their

efforts at construct validity of attachment consisted of a two part research design. This design focused on the evaluation of positive affective correlates of secure attachment in infancy and the relationship between secure attachment in infancy and competence at age three and one half years. Videotapes of 36 subjects at age 18 months in an expanded version of Ainsworth and Wittig's (1969) Strange Situation procedure were analyzed as a part of the research. Thirty of the original subjects were videotaped in a free-play situation at age 24 months. The results at both the 18 and 24 month interval indicated that there was more positive affective sharing between securely attached toddlers and their mothers than between anxiously attached toddlers and their caregivers. The authors' maintain that, based on their research data, affective sharing was a salient characteristic that distinguished securely attached infants from anxiously attached children.

The second part of the research by Waters and his associates (1979) was designed to measure continuity in individual adaptation across development (15 months to 3 1/2 years) by relating individual differences in the quality of attachment to two dimensions of competency in preschool. Data indicated that those infants rated securely attached at age 15 months demonstrated greater social adaptation or competency in a preschool setting at age three and one half than their peers coded within the anxiously/avoidantly attached dimension. The results of

this study are supportive of the hypothesis that individual differences in quality of attachment are predictive of individual differences in peer competency and ego strength in peer groups at three and one half years. Further a secure attachment relationship in early infancy equips the child for later development, with the "ability to generate and coordinate flexible adaptive responses to demands" (Waters et al., 1979, p.828) of the environment and to act on opportunities for social interaction and learning.

As research on attachment as a construct gained empirical momentum, the importance of identifying accurate attachment behaviors in young children commensurate with their development level was a primary goal. Jacobson and Wille (1986) measured the influence of attachment patterns on developmental changes in peer interactions from the toddler to the preschool period. Knowing that the development of peer interactions increases in degree of social complexity as children mature cognitively and physically, and that securely attached preschoolers are said to have greater confidence and effectiveness in dealing with people (Sroufe & Waters, 1977), their research examined age-related changes in the child's response to an unfamiliar peer in an unfamiliar setting. It was hypothesized that, given the influence of attachment patterns on the infant's capacity to explore a novel environment (Ainsworth et al., 1978), preschoolers

differing in attachment may be expected to differ in their response to an unfamiliar peer. Jacobson and Willie (1986) studied 24 focal children who at 18 months had been selected to represent the three attachment patterns under the Strange Situation paradigm (Ainsworth et al., 1978). At age two years, each focal child engaged in a free play session together with a same-sex, securely attached yet unfamiliar playmate. The children returned for a second play session at age three. The results reflected that by age three, secure children received the greatest number of positive responses by their peers while avoidantly attached children elicited fewer positive responses in their interactions. Ambivalent children, on the other hand, received more disruptive responses, antagonistic initiations and resistance from the unfamiliar peer. Further, secure preschoolers spent more time in exploratory play of novel stimuli and demonstrated lower levels of interaction with their mothers. Informally, it was noted that secure preschoolers were more creative and innovative in their free play. The results of this study have important implications for understanding the influence of early attachment patterns on quality of peer interactions and relationships in later development.

Arend, Gove and Sroufe (1979), like other developmental researchers, were concerned about the continuity of individual adaptation beyond the infancy stage. In their work, they postulated that secure

attachment, effectiveness in problem-solving and ego-resiliency were indicative of competency. With this in mind, Arend and his colleagues hypothesized that development was a coherent process and that the quality of adaptation was consistent across developmental stages within a stable environment. The sample population included 26 children who had previously participated in a study on quality of adaptation at ages 18 months and effectiveness at problem-solving at 24 months (Matas, Arend, & Sroufe, 1978). In the original study, the subject's quality of attachment had been identified using Ainsworth's Strange Situation paradigm. These children were assessed again between four and five years of age, in a nursery school setting, to determine the relationship between ego-control (containment of impulses), and ego-resiliency (flexibility, persistence and resourcefulness in problem-solving) and quality of attachment. Children classified at 18 months as securely attached were significantly higher on ego-resiliency and curiosity than anxiously attached children at five-years. Likewise, toddlers identified at 24 months as securely attached, competent problem-solvers scored higher on measures of ego-resiliency. The outcome of this study suggests that competent preschoolers are enthusiastic participants socially and academically and that they are "organized, persistent and flexible" (p.958) in problem-solving and in dealing with stress. As a result

of the positive primary relationship (infant-caretaker), the developing child explores and masters a complex environment independently while securing resources when needed.

Extension of the construct of attachment beyond the preschool years into adulthood has been limited to conjecture and has lacked consistent and conclusive agreement among researchers/theoreticians. Research in adult attachment has been hampered because of the lack of clearly defined components or behaviors indicative of attachment in the adult stages of development. Research by Caro (1985) attempted to define the constructs of attachment in adulthood by investigating the influence of attachment on adjustment in early adulthood. She maintained that an adequate definition of attachment in adulthood must include the experience of a satisfactory initial relationship, the persistence of adequate and available adult affectional attachment relationships, and the ability to respond competently within novel interpersonal settings. It was hypothesized that there should be a positive relationship between the quality of initial infant-caregiver relationships and adjustment to new interpersonal situations. Caro (1985) conceptualized adjustment to college as a developmental phase within early adulthood which was analogous to the demands the infant faced in Ainsworth's Strange Situation and the young child must experience in adjusting to the new school

situation. College freshmen completed questionnaires assessing students' perceptions of current attachment relationships, past attachment relationships and adjustment to college. The results of Caro's (1985) research are complex; however, she found that loneliness (conceptualized as the absence of continued attachment relationships) was predicted by high social anxiety, unmet interdependency needs, and lack of availability of attachment figures. Adjustment to college was mediated by low levels of social anxiety and perceived social support from friends. Despite these findings, Caro reported weak support for a direct linear relationship between early attachment experiences and adult behavior and suggested that further studies should consider the possibility of other intervening variables.

In an attempt to clarify the behavioral and affective dimensions of attachment in young adulthood, Armsden and Greenberg (1986) investigated the relationship of attachment to parents and peers to well-being. Using a college sample of students (n=86) ranging in age from 17 to 20, they hypothesized that adolecents with qualitatively different attachment to parents and peers would differ in proximity seeking and well- being. These authors also addressed the association between negative life change and psychological symptomatologies. They predicted that the association for the secure group would be weaker. To assess attachment of young adults, Armsden

and Greenberg (1986) developed the Inventory of Parent and Peer Attachments. The data suggested that the quality of attachment to parents and peers was strongly related to well-being, particularly to self-esteem and life satisfaction. The quality of these attachment relationships also predicted for reports of depression/anxiety and resentment/alientation. Students classified as highly securely attached reported greater satisfaction with themselves, a higher likelihood of seeking social support and less symptomatic response to stressful life events.

To understand the strength of family ties in late adolescents, Kenny (1986) developed a parental relationship questionnaire, designed in accordance with Ainsworth et al.'s (1978) conceptualization of attachment. Kenny's questionnaire surveyed the following content areas: perceived parent availability, understanding, acceptance, respect for individuality, facilitation of independence, interest in interaction with parents and affect towards parent during visits or reunion, student help-seeking behavior in situations of stress, satisfaction with help obtained from parents, and adjustment to separation. One hundren seventy-three first year college students from a large university completed the Parental Relationship Qestionnaire and self-reports of assertion and dating competency. The results of the research indicated that securely attached young men and

women described positive affect and an interest in interacting with parents at reunion. Students also reported low levels of stress at separation. Overall parents were described as available for support and encouraged independence. A difference in gender was noted in that first-year women reported greater help-seeking behavior from parents and friends than males. Males were reported as more likely to work out problems on their own. The association between parental attachment and assertion was found to be signficiant for females only.

Kobak and Sceery's (1988) investigation of the attachment was an effort to examine the coherence of attachment organization in later stages of development. Using the construct of representational or working models (Bowlby, 1973; Bretherton, 1985; Main, et al., 1985), Kobak and Sceery investigated affective and representational correlates of attachment organization. Attachment organization was defined by three working models which paralled the Strange Situation classifications, secure, avoidant (dismissing) and ambivalent (preoccupied). In a sample of 53 first-year college students these authors reported the secure group of students as more ego-resilent, less anxious and perceived higher level of social support than the dismissing group or preoccupied group. The findings Kobak and Sceery (1988) parallel the adjustment correlates reported earlier for infants and young children using the

Strange Situation classfication. The results of this research validate the importance and necessity of investigating the impact of attachment throughout the life-span.

Temperament: Theories and Empirical Research

The results of years of comprehensive, empirical research conclude that the organizational construct of attachment holds predictive power as a determinant of later development, both normal and pathological (Goldsmith & Alansky, 1987; Rutter, 1987). However, it cannot be ignored that attachment is not defined as a static trait but rather as an intervening variable that interacts with and is mediated by other behavioral systems in determining the quality of the affectional bond (Ainsworth, 1982; Sroufe & Waters, 1977). As such, both classical and contemporary developmental theorists (Chess & Thomas, 1977; Goldsmith & Alansky, 1987; Goldsmith, Bradshaw & Rieser-Danner, 1986; Goldsmith & Campos, 1982; Windle, Hooker, Lenerz, East, Lerner & Lerner, 1986) agree that temperament is both a powerful mediator in the development of early social relationships and a valid predictor of later psychosocial/socioemotional functioning. Further, Crockenberg (1986) postulates that one can see the relationship of temperament to attachment theory, without altering the original constructs set forth by Bowlby and Ainsworth. He suggests that the relationship can be

understood by interpreting temperament as a mediator in the social interactional process that underlies the development and maintenance of the attachment bond between the infant and primary caretaker. Differences in temperament can serve to elicit, inhibit or modify the responsiveness of the primary caretaker to the infant's signaling, thereby influencing the quality of the initial social relationship (Goldsmith & Campos, 1982).

A review of the current definitions of temperament and relevant research efforts will follow in an attempt to understand the role of temperament in child development and its predictive value in psychosocial functioning. The thesis of this research project is based on the theoretical underpinnings of life-span development, therefore, the format of the literature review on temperament will spring from a developmental orientation.

Adult personality theorists have long been interested in the influence of temperament on the structure of personality. Allport (1937) hypothesized that "temperament refers to the characteristic phenomena of an individual's emotional nature, including susceptibility to emotional stimulation, customary strength and speed of response, the quality of prevailing mood, and all peculiarities of fluctuation and intensity in mood; these phenomena being regarded as dependent upon constitutional make-up, and therefore largely hereditary in nature." (p. 54). Cattell (1946) also took the position

that temperament could be perceived as hereditary characteristics including excitability, sensitivity, perseveration and impulsiveness and that such temperament traits were resistant to changes within the environment.

Buss and Plomin's (1975) approach in defining temperament parallels Allport's (1937) in regard to the issue of heritability. From a biological or developmental perspective, Buss and Plomin make four assumptions in outlining a model for temperament. First, is that children begin life with some inherited personality dispositions. Second, inborn dispositions define many individual differences in personality. Third, these inherited dispositions are modified by the environment, and last, temperament traits influence or modify the environment. Their interaction temperament model suggests that the environment is influenced on a social level in three ways. First, temperament sets the tone for initial interpersonal interaction and in turn structures the environment in the general way the individual presents themselves to others. Second, the initiating behavior determines the social configuration of the environment. Buss and Plomin (1975) provide the example that a social person will select group activities whereas an individual low in sociability will gravitate toward more solitary tasks. The example of sociability is extended to illustrate the third assumption which states that if the response to feedback an individual offers to others within

a social context is reinforced, the reinforcement increases the probability that those responses will occur with greater frequency. In other words, if upon meeting an individual for the first time, the feedback is rewarding (e.g. smiling, easy conversation), one is likely to seek out that individual again. Although this model indicates that there is reciprocity between temperament and environment in regard to modifications, there is a limit to the impact the environment can have on changing temperament.

Buss and Plomin used five criteria to establish what they consider to be valid dimensions of temperament. The criteria demand that temperament be 1) inherited, 2) stable across childhood, 3) predictive of adult personality, 4) adaptive in value, and 5) present in our animal forebears. Emotionality, activity, sociability, and impulsivity (EASI) are the four elemental temperaments prescribed by them. A parental-report questionnaire, the EASI, was developed by these theorists to operationalize the four behavioral styles. Goldsmith and Campos (1982), in a review of Buss and Plomin's conceptualization of the construct, point out that there are practical problems with the criteria. It is felt that these criteria are in actuality only hypotheses rather than defining elements of temperament and present problems in measurement.

Rothbart and Derryberry (1981) on the other hand interpret temperament as individual differences in

reactivity and self-regulation. Assumed to have a constitutional basis, reactivity refers to the excitability, responsiveness or arousability of the physiological system of the organism, while self-regulation (social approach/avoidance and channeling of attention) implies that the neural and behavioral processes function to modulate incoming environmental stimuli. These theorists further elaborate that reactivity and self-regulation are expressions of the somatic, endocrine and autonomic response systems including motor activity, facial expressions, vocal activity, and emotional reactions. Intensity (level of excitement), threshold (sensitivity to stimulation), latency of response, and rise time of response (interval from onset to peak intensity), are the contributing characteristics to individual differences within the construct of temperament. Unlike Buss and Plomin (1975), Rothbart and Derryberry do not stand firm on the issue of stability since each dimension can vary across each response system. They do, however, agree on the importance of temperament in understanding social development. Criticisms of this psychobiological approach are based on the confounding effects created when systems interact. Goldsmith and Campos (1986) in articulating the complexity of this approach note that the "explication of the theory is so wide-ranging (i.e., the theory refers to cognition, social interaction, motivation, and emotional

development at neural, physiological, and behavioral levels) that it is difficult to determine just which individual differences in the infant's behavioral repertoire are not temperament-related" (p.170).

The most recognized research on temperament is by Thomas and Chess (1968, 1977, 1984) and their associates (Thomas, Chess & Birch, 1968; Thomas, Chess, Birch, Hertzig, & Korn, 1968) out of New York University Medical Center. Data collected from the New York Longitudinal Survey (NYLS) served as the framework for many of the current predictive studies on child development. In the early stages of their work, Thomas and Chess (1968) recognized that both normal and abnormal development resulted from interactions between the child and environment. Further they surmised that from their clinical practice, environmental factors alone could not explain the variability exhibited in individual children during development. Temperament, as the main variable in the behavioral scheme, was perceived as the behavioral style of the individual child. Conceptually distinct from the content/abilities and motivation of behavior, temperament, according to these researchers, emphasizes the "how" rather than the "what" of behavior. Thomas and Chess (1968) state that as a phenomenologic term, temperament described the characteristic tempo, rhythmicity, adaptability, energy expenditure, mood, and focus of attention of a child, independent of the content

of any specific behavior. The impetus for their 1956 study was the need to investigate the relationship of a child's individual characteristics in the development of behavioral disturbances. Thomas and Chess (1986) are clear in their proposition that temperament is "only one attribute of the person and must at all times be considered in its internal relations with abilities and motives and its external relations with environmental opportunities, demands and stresses" (p.135). Within this theoretical framework, normal development requires a "goodness of fit" between the expectations and demands of the environment and the child's own temperament characteristics, capacities and motivations. Disturbed behavioral functioning is likely to result, along any level of development, when the demands of the environment are not consonant with the child's own characteristics and style of behavior. This conceptualization does not imply that the environment is void of stress or stress-related factors but rather that when stress or demands are introduced it is a matter of internal reorganization and adaptation. Chess and Thomas (1968) postulate that, like other characteristics, temperament is subject to developmental change as a result of environmental interaction. An infant reared in a dysfunctional environment with poorness-of-fit between infant and caregiver is at risk for psychopathological development that may continue into adulthood. Yet unpredictable life

experiences may change the impact on the course of development such that psychopathology is reversed in a positive direction. As such, the issue of continuity/discontinuity of temperamental traits is reflected back to the intervening variables suggested in their "goodness of fit model" (Goldsmith & Campos, 1982).

The New York Longitudinal Study (NYLS) originally included 85 families contributing 141 children to its sample population (Chess & Thomas, 1968). The behavioral development of the subjects was followed from infancy to early adult life in an effort to identify and categorize temperamental characteristics as they influence normal and pathological development. Data were gathered through in-depth parent interviews, surveying individual characteristics of each subject including routine functions of daily living, responses to changes in routine and reaction, as well as special events or life situations. Teacher evaluations were used to measure adjustment to school and overall functioning each year of school. Direct observations of each child in the school environment were made yearly while play and problem-solving activities were observed during psychological testing at ages three and six.

Through inductive content analysis using parent interview protocols, Chess and Thomas (1968) established nine categories of reactivity. The nine dimensions of temperament are outlined in detail below:

1. Activity level: motor component present in child's functioning
2. Rhythmicity (regularity): predictability or unpredictability in time of a biological function
3. Approach or withdrawal: nature of the initial response to a new stimulus (e.g., food, toy or person)
4. Adaptability: ease with which responses are modified
5. Threshold of responsiveness: intensity level of stimulation necessary to evoke a response
6. Intensity of reaction: energy level of response
7. Quality of mood: amount of behavior, either positive or negative
8. Distractibility: effectiveness of external environmental stimuli interfering with or altering direction of behavior
9. Attention span and persistence: Attention refers to time spent in activity; persistence refers to time involved in activity in face of obstacles.

Three temperament constellations or patterns of child characteristics evolved from the factor analysis of data gathered from NYLS (Thomas & Chess, 1968, 1984). The "easy child" was characterized by regularity, adaptability, positive mood, moderate intensity and approach responses to new situations/stimuli rather than withdrawal. The easy child is the child who is regular in

his/her eating and sleeping routine as an infant and adjusts easily to school. As school-aged children, they are flexible to changes and have a moderate threshold for frustration. Thomas and Chess (1984) indicate that 40% of the NYLS represented this constellation. At the lower end of the temperamental continuum are those who are identified as the "difficult child". The characteristics associated with this group include irregularity in biological functions, difficulty in adapting to change and intense mood often in a negative direction. This child can be described at home and in school as needing prolonged periods of time to adjust to new situations, routines and periods. Their frustration level is low and often manifested in a negative manner (e.g., tantrums). Ten-percent of the NYLS were classified as difficult. The third constellation defined as the "slow-to-warm-up child" represented 15% of the sample. As expected, this group falls in the middle of the temperamental spectrum. The slow-to-warm-up child's initial response to novelty is withdrawal with slow adaptability after repeated exposure. Their reactions are mild in intensity (negative or positive) and they are relatively regular in biological functioning. Chess and Thomas (1984) point out that not all children fit into one of these three temperament constellations (35%). They credit this to the fact that individual children can manifest different combinations of temperamental traits.

The importance of the data presented by the NYLS research group has had a profound effect on the study of child development both from a theoretical and methodological perspective. The study was not without problems. The primary criticism is the lack of guidelines for replication of the temperamental categories. However, the ramifications of this problem leads to questions regarding the validity of the dimensions at different developmental stages, overlap within constructs and the validity of the assessment measures based on the nine dimensions (Goldsmith & Campos, 1982). A secondary concern is the practical merits of the temperament constellation "difficult child" as it has negative connotations for both the parent (childrearing) and the child (Rothbart, 1982). In spite of these difficulties, Thomas and Chess's formulation of temperament has clinical relevance to pediatrics, education, psychology, and psychiatry (Keogh, 1986) spanning from infancy to adulthood.

Empirical research findings show strong support that particular clusters of temperament attributes are predictive of psychopathology into adulthood (Thomas & Chess, 1977). Further, data exist which support the thesis that temperament traits influence adjustment in elementary school (Keogh, 1982), at home (Dunn & Kendrick, 1980a, 1980b) and in college (Klein & Rennie, 1985).

Chess and Thomas' (1977) NYLS is most recognized in the literature for investigating the genesis and evolution of psychopathology throughout childhood, adolescence and into early adult life. As participants of the research study, parents of subjects were informed that they could refer their children if the parent perceived the child to be experiencing emotional difficulties. At the time the subjects were five years of age, 45 had been identified as clinical cases. Statistical analyses of the temperament attributes revealed a strong correlation between behavioral maladjustment and the "difficult" temperament constellation particularly attributes of low rhythmicity, poor adaptability, low approach, negative mood and high intensity. Of the original sample population evaluated at infancy, 133 were interviewed at 16 and again in depth at 18 and 22 years (Thomas & Chess, 1984). Thomas and Chess (1984) reported that the greatest number of clinical cases appears between ages three and five years and six and eight years with the diagnosis of adjustment disorder. By adolescence, 25 recovered with increased improvement by early adult life (29). However, approximately 30% of the clinically identified continued to experience emotional disturbance into early adulthood. Those clinical cases emerging in adolescence (13-16 years old) presented more severe symptoms than those manifested in childhood.

Thomas and Chess (1984) do not identify anxiety as the etiology in the development of behavioral disturbances but

rather the poorness of fit or dissonance between the individual and the environment that results in maladaptive functioning.

Barron and Earls' (1984) research investigated the relationships between social correlates and temperament attributes in the development of behavior problems in three year old children. With a sample size of 90, parent and child interviews were conducted in which an measures of stress, parent-child interaction and child temperament survey were completed. Nine temperament characteristics of the child, the quality of the parent-child interaction, total family stress and demographic characteristics served as independent variables for predicting behavior problems in three year old children. Correlational and multivariate analyses indicated the direct effect of temperamental inflexibility and negative parent-child interaction on young children's behavior problems, with total family stress having an indirect effect. Barron and Earls' (1984) suggest that the negative effects of family stress can be reduced by the flexible temperament of the child and improvement in parent-child relationship.

Temperament as a moderator of stress for young children was examined by Wertlieb, Weigel, Spring, and Feldstein (1987). It was hypothesized that temperament may serve as a buffer or mediate the impact of stress as observed in behavioral symptoms. School-aged children (six and nine years old) and their mothers were visited in

the home over a 12 month period. The Life Events Scale, the Hassles Scale, Middle Childhood Temperament Questionnaire, and Child Behavior Checklist were completed by mothers to assess stress, temperament, and behavioral symptoms, respectively. The findings indicated that higher levels of stress (either undesirable life events or daily hassles) were associated with higher levels of behavioral symptoms. Multiple regression analyses reflected a significant relationship between behavioral symptoms and temperament attributes of high activity, low adaptability, withdrawal from new stimuli, distractibility, high intensity, negative mood, low persistence, and unpredictable behavioral style. Interestingly, the temperament data differentiated internal and external behavioral symptomatology. Attributes of high activity, high distractibility, and low threshold of stimulation were related to externalizing problems while withdrawal was more relevant to internalizing.

Findings relating the relationship between temperament and mental health in early and late adolescents were reported by Windle, Hooker, Lenerz, East Lerner, and Lerner (1986). The primary question of concern in their research centered on the functional significance of temperament during adolescence. Both the early-adolescent sample (11 years) and the late-adolescent sample (19 years) were administered the Dimensions of

Temperament Survey-Revised (DOTS-R), Center for Epidemiologic Studies-Depression Scale (CES-D) and the Perceived Competence Scale (PCS) within their classroom at their home school. A positive correlation between perceived competency and temperament (approach, flexibility, positive mood, high persistence, high task orientation and low distractibility) was hypothesized as well as a negative correlation between those temperament attributes and the depression subscale of the CES. The results were as expected for both the early-adolescent and late adolescent group suggesting that the relation between temperament and psychosocial functioning identified in infancy and early childhood literature also hold for early and late adolescence.

Studies investigating the correlation between academic achievement and temperament have found the behavioral attribute of adaptability to be significant in predicting achievement in school. Chess and Thomas (1977, 1984) reported that the NYLS research group examined correlations between temperament ratings at five years of age and achievement test scores in reading and arithmetic during elementary school. Low adaptability and low approach/withdrawal levels were predictive of low academic achievement whereas rhythmicity, distractibility, and quality of mood were unrelated to achievement. Lerner, Chess, and Lenerz (1985) in a follow-up of the NYLS sample summarized that it was the difficult temperament (low

rhythmicity, withdrawal, poor adaptability, negative mood and intensity of reactions) in the preschool years that correlated with low academic achievement in adolescence.

Pullis and Cadwell (1982) investigated task orientation, reactivity, and adaptability in a correlational study between temperament and academic achievement. Using first, second, and third graders, these researchers also found adaptability to be significantly related to academic achievement. Martin, Nagle and Paget (1983) conducted a threefold research design to identify processes affecting student-teacher interaction and student performance in the classroom. With reading and mathematics achievement as criteria, adaptability and persistence were found to be significant contributors to academic success.

In a longitudinal study by Hegvik (1984), the academic progress of 58 children was monitored in grades two through five. Math concepts, math computation, vocabulary and reading achievement were measured using standardized achievement tests. The dimension adaptability significantly correlated to all four content areas for the younger students while adaptability correlated only with the cluster score for the middle school students. Interestingly, but not surprising, was that distractibility was significantly related to the math scores. Keogh (1986) points out that differences in

patterns of relationships in temperament research may be a factor of the domain under study and the age of the child.

Recently researchers Martin, Drew, Gaddis, and Moseley (1988) investigated the utility of using temperament ratings to predict academic achievement over time. In an effort to assess the reliability, three separate studies were conducted with variance in time intervals between collection of the predictor variables and the criterion variables. In study one, 117 kindergarteners were rated on temperament using a teacher rated temperament measure and academic achievement was predicted by a standardized achievement screening instrument. The three achievement criterion measures were teacher grades, a standardized achievement test and a criterion referenced test. There was approximately a one-year interval between the predictor and criterion variables. Multiple regression analysis found the temperament dimensions of distractibility and persistence were most predictive of standardized measures of achievement. Persistence, distractibility and activity were strongly correlated to teacher assigned grades. The second study involved 22 preschoolers who were rated for temperament using a teacher rating temperament measure. The preschoolers were also administered two measures of intelligence. After aapproximately two year interval, students were evaluated for academic achievement. The results of the second study found a positive relationship

between approach/withdrawal and the achievement subtests of reading recognition, reading comprehension and spelling as wll as teacher assigned grades in number concept and written performance. The temperament dimensions of persistence and distractibility were found to significantly correlate with teacher assigned grades in reading, number concepts and written performance. The third study surveyed teacher rated temperament profiles for 104 first graders. Mid-semester of the first grade, a mental abilites measure was administered. Four years later achievement scores were obtained. The results of the third study found that the temperament dimensions of distractibility, activity and persistence were found to be the strongest predictors of standardized achievement test performance. Clearly the findings of Martin, et al. (1983), have tremendous implications for the utility of temperament ratings in predicting achievement over time.

Social adjustment in school also appears to be sensitive to the influences of temperament as perceived by teachers and peers. Cumulative data exist suggesting that teachers' perceptions of student's behavioral style influence the teacher-student relationship as well as evaluations of performance, grades and perceptions of ability level (Keogh, 1986). Using first graders, Martin et al. (1983) asked teachers to rank students in terms of social adjustment with consideration of peer relations, relationships with adults and emotional stability.

Temperament was assessed by the teacher using the Temperament Assessment Battery-Teacher Form. A strong correlation was found between reading and math grades and social adjustment and temperamental attributes of persistence, distractibility, approach/withdrawal, and adaptability.

A longitudinal study by Garrison, Earls and Kindlon (1984) investigated the relationship between temperament characteristics measured at three years of age and social adjustment at school entry (6 years). Using the Parent Temperament Questionnaire, mothers of subjects rated temperament on the nine dimensions outlined by Chess and Thomas (1977). After approximately three years in a school setting, subjects and teachers and mothers were asked to complete the Child Behavior Checklist (Achenbach & Edelbrock, 1980). Although these researchers found a low association between preschool temperament characteristics and adjustment at school entry in the group as a whole, high persistence, low rhythmicity and high intensity were found to be significant in predicting increased risk for maladjustment at school entry.

Dunn and Kendricks (1980a, 1980b, 1982) investigated the relationship between temperament and adjustment in the home environment. Specifically, they were interested in how individual differences in children influenced the quality of the mother-child relationship. To answer this research question, 40 first-born children were followed

one to two months prior to the birth of a second child and until the second child was 14 months of age. Individual differences were measured through parent interviews and direct observations at four points: (1) during the mother's pregnancy with the second child, (2) 2-3 weeks after the birth of the sibling, then (3) at eight months, and (4) 14 months after the birth of the second child. The longitudinal results indicate that mothers do behave differently with children of different temperaments and that the temperamental characteristics tend to be associated with differences in the quality of the family relationship. Specifically, the data showed that first-born children reported to have "difficult" temperaments show more stress-related behaviors (fearful, ritualistic behavior) 14 months after the birth of the sibling. Additionally, it was documented that the "difficult" first-born children received less attention from their mothers. The clinical implications of these results are that temperamental attributes may be variables in determining levels of vulnerability to stressful events (Dunn & Kendricks, 1982).

In a structured laboratory setting, Webster-Stratton and Eyberg (1982) investigated the interrelationship between child temperament variables and the mother-child relationship. Thirty-five mothers of three to five year old children were asked to complete pencil and paper inventories measuring their child's temperament and

behavior problems, and each mother-child pair was observed in a free play situation. Analysis of the data reflected correlations between high activity and low attention and behavioral problems at home. Further, these children were independently described by observers as more nonaccepting/noncompliant in their interactions with their mothers. Mothers of low attention, high activity children, in turn were more negative in affect, more nonaccepting and more submissive with their children. These researchers suggest that perhaps children with difficult temperaments are more demanding on mothers yet provide little reinforcement relative to the effort. The results of this study underscore the importance of the concept of goodness of fit for the mother-child relationship. That is, when mothers of difficult temperament (high active, low attention) children respond in a negative and submissive manner, it increases the likelihood for stressful interactions and the development of behavioral problems. Lastly, it is interesting to note, that when examining the relationship between child temperament attributes and mother-child interaction behaviors, child temperament attributes were more correlated to mother behaviors than to child behaviors.

Few studies have investigated the construct of temperament and its implications for adulthood. Klein (1987) and Rennie (1985) have focused their research on adaptation to change in young adulthood as it relates to

temperament. Temperament as a mediating factor in adjustment to college residence living was explored by Klein and Rennie. The central tenet of their research was based on the notion that young adults who leave home to attend college are faced with transitional stress. Separation from friends and family, academic pressures and new personal responsibilities are a few of the stressors young adults encounter as they begin their college career. Specifically, Klein and Rennie were interested in the relationship between temperament and affective adjustment, temperament and campus involvement patterns, and temperament and satisfaction with college and residence hall life. The Dimensions of Temperament Survey, The Multiple Affect Adjective Checklist, the College Activity Scale, and the College Satisfaction Scale were completed by 100 entering freshmen at a state university after completion of the first eight weeks of the fall semester to assess the questions posed by these researchers. The results were significant and supportive of the findings stated in child-temperament literature. Adaptability was negatively correlated with affective measures, with the more adaptive students being less anxious, less depressed and less hostile. Adaptability was related to campus involvement patterns with more adaptive students participating in more activities, with greater frequency, and spending more time with others. The dimension of attention correlated positively with

involvement in activity whereas reactivity correlated negatively with involvement. Multiple regression analysis for the relationship between temperament and satisfaction with college and residence hall selected adaptability as the only predictor variable. The results of research investigating the influence of temperament attributes on school adjustment show consistency for both young children in elementary school and young adults in college.

Klein (1987) continued to research the role of temperament and adaptation among young adults during the transition from high school to college. The core of Klein's research is based on the assumption that "temperament is an active mechanism by which the individual achieves adaptation after change.....the pattern of adaptation to change from interpersonal to intrapersonal is, in part a correlate of individual temperament" (p. 121). The three relationships were investigated: the relationship between temperament and loneliness; the relationship between temperament and satisfaction and activity; and the relationship between temperament and affect. The Revised Dimensions of Temperament Scale, The Differential Loneliness Scale, The College Activity Scale, The College Satisfaction Scale and The Multiple Affect Adjective Checklist were completed by 167 college freshmen from two different insitutions (state-supported university and a private college). The

sample included both residential and non-residential students. During the first week of orientation, students completed the temperament survey along with several other measures. At the eighth week of the quarter, students completed the loneliness scale, scales of satisfaction and activity and the affect checklist. Multiple regression analysis for the relationship between temperament and loneliness found loneliness with friends was predicted by flexibility-rigidity. Loneliness in group relationships was predicted by approach-withdrawal and mood while loneliness in relation to family was predicted by rhythmicity, attention-distractibility, mood, and activity level-general. The relationship between activity and temperament found that the very active student is more likely to aproach new situations, show flexibility, high attention span and positive mood. Satisfaction correlated with approach, positive mood and flexibility. In regard to the relationship between temperament and affect, affect was defined by the dimensions of depression, anxiety, and hostility. The temperament attributes of approach, flexibility, attention span and positve mood all correlated significantly with the three affective components. Clearly the results of Klein's (1987) study support the premise that temperament is related to the interactional style and success of transition and adaptation. The findings also fit with the work on temperament and adapation in infancy and early childhood

and supports that temperament does have a role in development across the life-span.

In studying the literature on both attachment and temperament, several possible relationships between attachment and temperament emerge. The construct attachment refers to the affective bond between the infant and mother dyad; this bond is the first of many social relationships that will develop over a lifetime. Temperament, on the other hand, is not interactional in that it exists independent of the interactional process (Goldsmith & Campos, 1982). However, the individual differences or temperamental attributes brought into the relationship by the infant influence the quality of the attachment relationship. As reported in Bowlby's theory (1969, 1973, 1980), maternal responsiveness to the infant's signaling is paramount in determining the directions and expression of the affective bond. If maternal perceptions are that the infant is easy, difficult or slow-to-warm-up, the type of relationship established within the dyad is a consequence of mother's responsiveness to the individual differences of the infant. The parameters of expression of temperament may also be influenced by the individual differences in maternal social responsiveness (Goldsmith et al., 1982). Campos and Stenberg (1980) illustrate this parallel when they suggest that an infant may learn from observing his/her mother that there are features of the environment

of which to be fearful and if the learning is internalized sufficiently, the child will demonstrate cross-situationally stable thresholds for fearfulness. A third relationship between temperament and attachment exists when infants' individual differences are factored into the classification of security of attachment. Kagan (1971) adds that differences in the quality of the attachment relationship described as either avoidant, ambivalent or secure according to the Strange Situation (Ainsworth & Wittig, 1969) are not clearly reflective of the history of the dyad relationship but perhaps individual differences in sensitivity to stress (i.e., separation). In other words, it may be the infant's threshold for stress that is inadvertently measured as security of attachment. For example an "avoidantly attached" infant may be more flexible and amenable to change hence not easily distressed by repeated maternal separations, appearing unattached. Likewise, the "ambivalently attached" infant may be more sensitive to change and easily upset, thereby appearing clingy and resistant within the same context (Goldsmith & Campos, 1982). Therefore, it is possible that temperament influences the classification of attachment under the context of the Strange Situation without measuring the quality of the infant/mother relationship. Rothbart and Derryberry (1981) succinctly state the complexity and the influence of attachment and temperament when they cite

that "as important as the mother's sensitivity and flexibility may be, the role of the child's constitutional capacities and limitations in shaping her behavior should not be underestimated. Nor should the sensitivity and flexibility of the infant be neglected, for infants vary greatly in their capacity to augment or reduce their own reactivity, and to bring distress or pleasure to their care-givers. It seems essential that the mother-infant interaction and the resulting attachment process be viewed as a function of two intricate and flexible interactional systems, which can achieve a "balance" in a number of ways." (p.68). Lastly, as we have seen through this literature review, empirical evidence exists, demonstrating that both temperament and attachment are predictive of adjustment from infancy to adulthood.

Summary

This study represents an attempt to empirically investigate the constructs of attachment and temperament in adulthood. Temperament and its influence on attachment were investigated as it related to adjustment to college among freshmen students. The first line of questioning was to address the relationship between temperament and the perceived quality of the early attachment relationships. It was hypothesized, according to the literature, that rhythmicity, approach, mood, low distractibility and persistence would be related to

reports of attachment with parental figures. Secondly, this research project investigated the relationship between adjustment to college, temperament and attachment. According to attachment theory, there should be a positive relationship between the quality of the initial infant-caregiver relationships and adjustment to new interpersonal situations. Temperament dimensions of rhythmicity, approach, mood, low distractibility, and persistence are expected to reflect a positive adjustment to college. The inclusion of college freshmen as a sample population to study the aforementioned constructs in early adulthood is essential as it affords an analogous paradigm used to study attachment in infancy. It can be said that the freshman's initial relationships with the college environment are parallel to the situation that young children encounter when they move from their relationships with the primary caregiver to explore the world (Caro, 1985). For both developmental phases, satisfactory adjustment would be predicted by the adequacy of past and present attachment relationships and adequate fit between the individual and the environment.

Empirical support for the two predictions outlined by this research design aids in clarifying the components or behavioral referents of adult attachment and underscores the importance of identifying temperamental patterns indicative of adaptive psychosocial functioning in early adult life. Clarification and identification of the role

of attachment and temperament on adjustment in adulthood also has significance for prevention and intervention in early childhood.

CHAPTER III

Methodology

The purpose of this study was to investigate the relationship between perceptions of early attachment relationships and temperament in adulthood. Further, the relationship between adjustment to college, temperament and attachment were examined.

This chapter outlines the methodology used in the present study. It is organized as follows: (a) sample and sampling procedures and data collection procedures, (b) operational definitions of the variables used in this study, (c) instrumentation, and (d) research design.

Sample and Sampling Procedures

The participants in this study were freshmen students enrolled at a large state university (University of Maryland, College Park Campus) and a small private college (Mount Saint Mary's College, Emmitsburg, Maryland) during the Fall 1988 semester. A summary of demographic data on the sample is presented in Appendix A. The criteria for selection into the subject pool were as follows: (a) students were first semester freshmen enrolled for the first time at the University of Maryland or Mount Saint Mary's as of September 1988, and (b) they were living in the residence halls on campus.

Out of the 1,950 freshmen (1600 - University of Maryland; 350 Mount Saint Mary's College) initially contacted, a total of 263 freshmen (119 from the University of Maryland, and 144 from Mount Saint Mary's College) participated in the study. Two students were eliminated from the study because of incomplete questionnaires.

Permission to recruit students was requested through the Residence Life Program at both the University of Maryland and Mount Saint Mary's College. Students were contacted during the third week of the Fall semester. A letter requesting their participation was sent through campus mail (See Appendix B). The letter briefly described the research project and provided the dates, times and locations of data collection and described the incentives offered for participation. Light refreshments (cookies, chips, nuts and sodas), discount coupons for pizza (at University of Maryland campus only) and drawings for free movie tickets, and dinner at local establishments were the incentives offered to volunteers. Attached to the letter was a postcard requesting the final results of the study. Students were asked to complete the card (name and mailing address) and to return it to the researcher. Two follow-up letters were sent two weeks apart reminding students of the time, date and location of data collection for the research project (see Appendix C). Several days prior to initiating the research, posters outlining

research specifics (time, date, and location) were posted in each participating residence hall lobby. Resident directors and resident assistants also reminded students on the day of data collection of the time and location of the research.

Data Collection Methods

Data collection took place in the freshmen residence halls (University of Maryland: Ellicot, Denton and Cumberland Halls; Mount Saint Mary's: Sheridan and Pangborn Halls). Students from each residence hall were gathered as a group in their respective community recreation rooms and/or residence hall lobby. At the time of data collection, a brief verbal presentation was given addressing the nature of the research; assurance of confidentiality; instructions for completing data packets; general questions; and procedures for receiving results of the research. The students were given a packet consisting of the following: Informed Consent Form, Information Sheet, Release Form, Parental Bonding Instrument (PBI), Dimensions of Temperament Survey - Revised (DOTS-R), Student Adaptation to College Questionnaire (SACQ) and Perceived Social Support Scales (Friends) (see Appendix B). The students were asked to complete the data packets on site, leaving the data packets with the researcher. Piloting procedures indicated it would take approximately 30 minutes to complete the data packets. The range of

time for completion of the data packet was approximately 30 to 60 minutes.

Operational Definitions of Variables used in this Study

Chapters I and II discussed the theoretical basis for the selection of the specific variables for the present study. This section presents the operational definitions of the variables and various measures, as well as available information with respect to the psychometric properties of the measures used.

Variables of Interest

Predictor Variables. The predictor variables for this study were temperament and attachment. Temperament was defined as the characteristic behavioral style that individuals manifest. Temperament was operationally defined by ten dimensions on the Revised Dimensions of Temperament Survey (Windle & Lerner, 1986). The ten dimensions of temperament included: activity level - general; activity level - sleep; approach/withdrawal; flexibility/rigidity; mood; rhythmicity - sleeping; rhythmicity - eating; rhythmicity - daily habits; distractibility and persistence.

Attachment was operationally defined as perceptions of parental bonding as measured by two dimensions on the Parental Bonding Instrument (Parker, Tupling, & Brown,

1979). The two dimensions of parental bonding are care and overprotection.

Criterion Variables. Criterion variables for this research were adjustment and perceived social support. For the purposes of this study, adjustment to college was perceived as adjustment to the initial transition from home to college. The initial transition period was defined as the first eight weeks of the first semester. Adjustment was operationally defined as adaptation to the academic, personal and social demands of the college environment as well as the attachment to the institution as measured by the Student Adaptation to College Questionnaire (Baker & Siryk, 1984). The four principle categories defining college adjustment included: academic adjustment to the educational demands specific to the college experience; social adjustment to interpersonal-societal demands within a residential community; personal-emotional adjustment to the college experience and goal commitment/institutional attachment. Perceived social support, as measured by the Perceived Social Support Scale (Procidano & Heller, 1983), was operationally defined as the extent to which individuals perceive that their need for support was met by information and feedback provided by family and friends and as such is a measure of adjustment.

Descriptive Variables. Descriptive variables were age, sex, race, friendships, relatives in area, and visits home as measured by demographic information sheet.

Instruments

Information sheet. This form was used to collect relevant demographic data (Appendix B).

Release form. This form (Appendix B) consisted of a statement giving permission to the University of Maryland and Mount Saint Mary's College Records Offices to release the student's high school grade point average (GPA), first semester grade point average, and Scholastic Aptitude Test (SAT) scores to the investigator. Students were asked to sign and date the form, and to provide their Social Security Number. The form consisted of two duplicate halves since the Records Office is required to retain a copy for their files. SAT scores were computerized and accessible through the Record's Office at both the University of Maryland and Mount Saint Mary's College. High school GPA's were available only for University of Maryland students.

Parental Bonding Instrument. The Parental Bonding Instrument (PBI) is a self report measure consisting of 25 items (Parker, Tupling, & Brown, 1979), (see Appendix B). The instrument was designed to investigate "the parental contribution to a parent-child bond" (p.1) as perceived by the child. Based on the findings of extensive research of

parental behaviors and attitudes, two dimensions, "care versus indifference/rejection" and "control/overprotection versus allowance of autonomy and independence", were identified by the authors as being influential in the parental contribution to the bonding process. The "care" subscale is comprised of 12 items, with 13 items representing the "overprotection" subscale. A four point Likert rating scale is used where 3 = "Very like", 2 = "Moderately like", 1 = "Moderately unlike" and 0 = "Very unlike". A maximum score of 3 is possible on both scales. After reversal of negatively worded questions, items were summed and averaged across items so that scores on each scale ranged from zero to three. Missing data on the PBI subscales was recoded to the mean of the scale for that particular student.

The affective parental bond as measured by the PBI provides two subscales, care and overprotection. Care was defined as affection, emotional warmth, empathy and closeness while overprotection was defined as control, overprotection, intrusion, excessive contact, infantilization and prevention of independent behavior. Parker, Tupling, and Brown (1979) determined the characteristics of the parental bonding relationship by taking the mean of possible scores on the care (Mean=18) and overprotection (Mean=19) subscales. They categorized the bonding relationships as follows: Optimal bonding is representative of a high care score (>18) and low

overprotection score (<19) while absent or weak bonding is reflected by a low score on care (<18) and a low score on the overprotection subscale (<19). For the purposes of this study, however, the two subscales of care and overprotection were used as continuous data rather than categorizing subjects as did Parker, Tupling, and Brown. This approach was taken as predictor variables in the multiple regression analysis treated as continuous was more appropriate and made better used of the variance among subjects then categorical data.

Test-retest reliability was established by Parker and his associates (1979) by administering the inventory on two occasions within a three week interval. A Pearson correlation coefficient of .76 resulted for the care scale and .62 for the overprotection scale. Split-half reliability was measured at .87 for the care scale and .73 for the overprotection scale.

Concurrent validity was determined by a correlation between independent raters' scores of "care" and "overprotection" obtained during an interview with the subjects and scores obtained on the Parental Bonding Instrument. The Pearson correlation between self-report care scale and interviewed care dimension were .77 for each of the two raters. The correlations between the self-report overprotection scale and the interviewed care dimensions were .47 and .50 for the two respective raters.

Revised Dimensions of Temperament Survey. The Revised Dimensions of Temperament Survey - Adult (DOTS-R Adult) is a 54 item self-report measure (Windle & Lerner, 1986) which is a revision of the Dimensions of Temperament Survey (DOTS) developed by Lerner, Palermo, Spiro and Nesselroade, (1982) (see Appendix B). The development of this measure is based on the definition of temperament as the "characteristic behavioral style that individuals manifest" (p.214) and that these characteristics were influential in psychosocial development and behavioral adjustment. Windle and Lerner (1986) assert that the adult scale of the DOTS-R assesses ten attributes: Activity Level - General; Activity Level - Sleep; Approach/Withdrawal; Flexibility/Rigidity; Mood; Rhythmicity - Sleeping; Rhythmicity - Eating; Rhythmicity - Daily Habits; Distractibility; and Persistence. Temperament scores are obtained within each category by summation of the students' responses after the reversal of negatively worded questions was completed. Missing data on the DOTS-R were recoded to the mean for that item for all subjects. A four point Likert scale was used with each item where 1 = "usually false", 2 = "more false than true", 3 = " more true than false", and 4 = "usually true" (Windle, Hooker, Lenerz, East, Lerner & Lerner, 1986). For each category, with the exception of distractibility, higher scores reflect a positive direction for each

attribute. However, on the distractibility subscale a high score indicates more attention, less distractibility. The range of possible scores for each temperament dimension were as follows: 7-28 for activity level-general (7 items), 4-16 for activity level-sleep (4 items), 7-28 for approach/withdrawal (7 items), 5-20 for flexibility/rigidity (5 items), 7-28 for quality of mood (7 items), 6-24 for rhythmicity-sleep (6 items), 5-20 for rhythmicity-eating (5 items), 5-20 for rhythmicity-daily habits (5 items), 5-20 for distractibility (5 items), and 3-12 for persistence (3 items).

Internal consistency coefficients (Cronbach's Alpha) for the DOTS-R Adult are reported by Windle and Lerner (1986) ranging from .62 to .89. Because limited studies have been conducted using the DOT-R, a Cronbach's Alpha was computed to determine internal consistency within each scale. Reliability coefficients for each scale follows: activity level - general .79, activity level - sleep .82, approach/withdrawal .74, flexibility/rigidity .61, mood .88, rhythmicity - eating .69, rhythmicity - daily habits .54, distractibility .75, and persistence .65. Windle and Lerner (1986) obtained test-retest reliabilities ranging from .59 to .75 with a time interval of six-weeks (Windle & Lerner, 1986). Windle, Hooker, Lenerz, East, Lerner, and Lerner (1986) state that construct validity was established by Windle in an unpublished manuscript in an inter-inventory study among college students. Convergent

and discriminant relations were also reported to have been assessed by the DOTS-R and Emotionality, Activity, Sociability, and Impulsivity-II, and Eysenck's Personality Inventory; however statistical coefficients were not provided.

Student Adaptation to College Questionnaire. The Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1986) (see Appendix B) is a 67-item self-report Likert-type scale designed to measure student adjustment to college. Four principle categories delineate college adjustment including: (1) academic adjustment to educational demands specific to college experience, (2) social adjustment to interpersonal-societal demands associated within a residential community, (3) personal-emotional adjustment to the college experience, and (4) goal commitment/institutional attachment. A 9 point scoring scale, ranging from 9 = "Very closely applies to me" to 1 = "Doesn't apply to me at all", provides an index of adjustment for each category. Half of the items are positively keyed, half are negatively keyed. Missing data on the SACQ were recoded to the mean of the subscale for that particular item across subjects. Baker and Siryk (1986) determine the overall adjustment as the summation of all subscale scores, with higher scores indicating better adjustment. For the purposes of this study, in order to make the scores more meaningful, a mean rather than a sum was computed thus returning the scale values to

the nine point scale. The first three subscales mentioned contain items that are specific to that subscale. However, the fourth subscale (goal commitment-attachment) included eight items from the social subscale and one item from the academic subscale. Baker and Siryk (1986) note that the goal commitment/ institutional attachment subscale was developed based on attrition figures for Clark University (freshman samples), and therefore may not be appropriate at other institutions. Noting the caution reported on the attachment subscale by its authors, it was used in this study as has been widely used in adjustment research (Baker & Siryk, 1986; Caro, 1985).

Cronbach's coefficient alpha values range from .77 to .91 for the four subscales and from .92. to .95 for the full scale. Criteria used to establish discriminant and convergent validity were selected by Baker and Siryk (1986) based on relevancy to the individual subscale. External criteria used for measures of validity for each subscale are as follows: the Academic subscale used freshman year grade point average and election to an academic honorary society; Social Adjustment subscale used social activities checklist and outcome of application for dormitory assistant positions; Personal-Emotional Adjustment subscale correlated requests for campus psychological services; and Goal Attachment/Institution Attachment subscale used attrition as a validity criterion. Significant correlations in the expected

direction were found between the academic subscale and freshman GPA and election to an honorary society (Phi Beta Kappa), between social adjustment and social activities checklist and determination of dormitory applications (i.e., accepted for position). Significant relations in the expected direction were found between Personal-Emotional Adjustment Subscale and requests during the freshman year to a campus psychological services center.

Perceived Social Support Scale (PSS). The Perceived Social Support Scale was designed by Procidano and Heller (1983) to measure "the extent to which an individual perceives that his/her needs for support, information, and feedback are fulfilled by friends and by family" (p.3). The 40 item self report measure consists of two subscales: Perceived Social Support from friends (PSS-Fr) and Perceived Social Support from family (PSS-Fa) (see Appendix B). Each subscale contains 20 items, some of which are identical except the identification of "friends" or "family". The two subscales are independent and do not provide an overall perceived social support score. For the purposes of this study only the subscale Friends was used as a criterion measure of adjustment to college as the students were living at college, away from home. It was hypothesized that the perceived support provided by the family at home would transfer to perceived support from peers at college as a measure of adjustment. Items

were keyed such that 1 = "yes", 0 = "no", and 0 = "don't know". Missing data was not recoded but given a zero value. The subscale score was obtained by summing the students' responses after negatively worded questions were reversed. Possible subscale scores range from 20 (maximum perceived social support) to 0 (no perceived social support).

Validation studies by Procidano and Heller (1983) report alpha coefficients of .88 for the PSS-Fr and .90 for PSS-Fa. Factor analyses indicated that each scale is composed of a single factor. Construct validity was established by correlating the PSS-Fr and PSS-Fa with the Life Experience Survey (LES) (Sarason, Johnson, & Siegel, 1978); Social Network Questionnaire (SNQ) (Liem & Liem, 1977); and Langner screening instrument (1972). Statistical analyses found the PSS-Fr and PSS-Fa to be positively related to assessments of social assets and negatively related to measures of psychopathology. Procidano and Heller (1983) report the PSS-Fa and PSS-Fr to be related ($r = .24$) but measure separate and valid constructs of social support.

Analysis and Design

The research design of this investigation was correlational. Statistical procedures used to analyze the data included stepwise multiple regression in order to determine the relationship between the predictor variables

of Temperament (Revised Dimension of Temperament Survey) and Attachment (Parental Bonding Instrument) and the criterion variables of Adjustment (Student College Adjustment Questionnaire and Perceived Social Support - Friends). Means, standard deviations, and frequencies were used to describe characteristics of demographic variables. Pearson correlations between measures were calculated. Finally, t-tests and chi square analyses were conducted to determine the differences between the two schools.

Hypotheses

The literature suggests that infant temperament may influence the early parent-child relationship and later developmental adjustment. Care and low overprotection, the two components of attachment, are hypothesized to predict childhood adjustment. The hypotheses were formed on the basis of the literature and the seemingly logical nature of these relationships. The following specific hypotheses were formulated:

The Relationship Between Temperament and Attachment.

1. The temperament clusters of rhythmicity, approach, positive mood, low distractibility and persistence will predict care.
2. The temperament clusters of rhythmicity, approach, positive mood, low distractibility and persistence will predict low overprotection.

The Relationship Between Temperament and Adjustment.

3. The temperament dimensions of approach, flexibility, positive mood, persistence, and low distractibility will predict academic adjustment.
4. The temperament dimensions of high activity level-general, low distractibility, flexibility, and positive mood will have a positive relationship to social adjustment.
5. Temperament clusters of approach, low distractibility, positive mood, flexibility and persistence will have a positive relationship to personal-emotional adjustment.
6. Temperament clusters of flexibility, high activity level-general, approach, low distractibility and persistence will have a positive relationship to goal commitment/institutional attachment.
7. Temperament clusters of high activity level-general, flexibility, positive mood, low distractibility, approach, and persistence will relate positively to perceived social support from friends.

Relationship Between Care and Low Overprotection as Components of Attachment and Adjustment.

8. Attachment dimensions of care and low overprotection will relate positively to academic adjustment.
9. Attachment dimensions of care and low overprotection will relate positively to social adjustment.

10. Attachment dimension of care and low overprotection will relate positively to personal-emotional adjustment.
11. Attachment dimensions of care and low overprotection will relate positively to goal commitment/ institutional attachment.
12. Attachment dimension of care and low overprotection will relate positively to perceived social support from friends.

Additional post hoc analyses were conducted on an exploratory basis to further investigate influence of temperament on academic achievement in early adulthood. The relationship of temperament on high school GPA, first semester college GPA, and SAT scores was of particular interest. The relationship between temperament and achievement (SAT's and GPA) is difficult to predict since the focus of past literature has been on young children and not on young adults. Simple correlations between demographic variables (e.g., distance from home, prior friendships, relatives in area, and frequency of trips home) and independent (temperament and attachment) and dependent variables (adjustment and perceived social support) were conducted.

CHAPTER IV

Results

The purpose of this research was to investigate three general areas regarding the implications of early relationships and temperament on young adult development. Specifically, the three areas were: (1) what is the relationship between temperament and the perceived quality of the early attachment relationship, (2) what is the relationship between temperament and initial adjustment to college, and (3) what is the relationship between the perceived quality of early attachment relationship and adjustment to college. Based on the three areas of investigation, specific hypotheses were formulated to address each relationship.

This chapter reports the results of this research. The results of the analyses are organized as follows: (a) characteristics of the sample, (b) the relationship of temperament to attachment (hypotheses 1 and 2), (c) the relationship of temperament to adjustment (hypotheses 3, 4, 5, 6, and 7), (d) the relationship of attachment to adjustment (hypotheses 7, 8, 9, 10, and 11), (e) supplementary post hoc analyses, and (f) a short summary.

Characteristics of Sample

Characteristics of Total Sample

Responses to questionnaires from 261 college freshmen were used in the data analyses. All participating students were first semester freshman students living on campus (See Appendix A, Table A-1 for Summary of Characteristics of Total Sample). One hundred sixteen freshman students were from a large state university (University of Maryland) and 145 freshman students were from a small private college (Mount Saint Mary's College). Sixty-two percent of the freshman students were females and 38% were male. The age range of freshmen was 16 years to 20 years of age with the mean age being 18 years. Race was classified as white (81%), black (12%) or other (7%). The classification of "other" included Hispanics, Native Americans, and Asians. Since all freshman students were living away from home for the first time, in a residence hall on campus, the distance between school and home was measured. Miles from home was divided into four intervals: 0 to 50, 50 to 100, 100 to 250 and over 250 miles. Twenty-nine percent of the students lived within 50 miles of home, 20% lived between 50 to 100, 25% were 100 to 250 miles from home, and 26% lived over 250 miles away from home. Visits home were classified as every weekend, every other weekend, only on holidays, and other. Seven percent of the students reported going home every

weekend and 12% responded every other weekend. Fifty-nine percent of the freshmen reported going home only on the holidays while 21% recorded at other times or when necessary. Students were asked to report whether they had high school friends who were also attending the same college. Seventy-seven percent indicated they had friends attending the same college while 23% reported not knowing other high school classmates at college. Those freshmen who reported having prior friendships were asked to estimate the number of friends from high school they knew on campus. The range of pre-college friends ranged from one to 70 with the mean of six. Ninety-nine percent of the students reported that since being at college, they had made new friends. Lastly, students were asked if they had relatives in the area. Seventy-one percent reported having no relatives in the area.

Characteristics of Sample by School

In order to determine sample bias by school in relation to the college attended, comparisons by school were made for demographic variables (See Appendix A, Table A-2). Additionally, for each school, the sample population was compared to the total population of freshmen students on sex, age, and race to determine sample representation. It was found that the sample population was representative of the total population for each institution on those three variables. The student

sample at the University of Maryland include 71% females (n=82) and 29% males (n=34). Mount Saint Mary's College had 55% females (n=79) and 45% males (n=65). The mean age for University of Maryland students was 17.89 (SD=.52) and the mean age for Mount Saint Mary's College students was 18.00 (SD=.46). Race classification for Maryland student was as follows: 72% white, 17% black and 11% other. At Mount Saint Mary's College, 88% of the freshmen sample were white, 9% black and 2% other. Miles from home was divided into four intervals of distance (0-50, 50-100, 100-250 and over 250). The modal distance interval for Maryland students was 50-100 while the modal interval distance for Mount Saint Mary's College students was 100-250. At the University of Maryland, 50% reported living 0 to 50 miles from home, 12% reported 50 to 100 miles, 16% reported 100 to 250 miles, and 23% reported living over 250 miles from home. Twelve percent of Mount Saint Mary's College students reported living 0 to 50 miles from home, 28% reported 50 to 100 miles, 32% reported 100 to 250 miles, and 28% reported living over 250 miles from home. The differences between school on the variable of distance from home was statistically significant with Mount Saint Mary's College students being further away from home ($t=-4.45$, $df= 1,259$, $p<.001$). Visits home for University of Maryland students were as follows: 15% every weekend, 22% every other weekend, 33% on holidays, and 31% other. For Mount Saint Mary's College students, 2% visited every

weekend, 4% visited every other weekend, 80% went home on holidays, and 13% visited at unspecified times. Eighty-four percent of the University of Maryland sample reported having prior friends at Maryland while 16% did not know anyone attending Maryland. For Mount Saint Mary's College, 71% reported knowing other students also attending while 28% of the students did not know anyone.

The difference between schools was statistically significant. University of Maryland students reported having more friends from high school attending the same college ($t=2.99$, $df=1,179.82$, $p<.01$) than Mount Saint Mary's College students. There was little variation between schools in regard to making new friends. Ninety-nine percent of the students from each school reported making new friends since arriving at college. In regard to relatives in the area, 46% of the University of Maryland students reported having relatives in the area while only fifteen percent of the Mount Saint Mary's College students reported having relatives in the area.

Academic Characteristics of Sample

High school GPA's, SAT scores, and first semester GPA's were also collected. Range of scores, means and standard deviations are presented both for the total population and by school (See Appendix A, Table A-3). High school GPA's were only available for the freshmen at the University of Maryland. Mount Saint Mary's College

does not use high school GPA as criteria for freshmen admissions.

The range of high school GPA's for Maryland students was 1.93 to 4.0 with a mean of 3.05 (SD=.51, n=108). Eight GPA scores were not included in the analysis because students did not sign the consent form to release these scores. The mean high school achievement level for the University of Maryland freshmen sample was above average. For the total sample, SAT scores were available for only 206 of the students in the sample population. Fifty-five cases were missing for this analyses. The breakdown for missing cases from both schools follows: University of Maryland, eight no-release forms for scores and five unrecorded scores; Mount Saint Mary's College, 36 no-release forms for scores and six unrecorded scores.

The range of SAT scores for the total sample was 630 to 1500 with a mean of 1008 (SD=160). University of Maryland freshmen had a mean SAT score of 1081 (SD=161) with Mount Saint Mary's College mean SAT score being 936 (SD=122). This difference between schools on the variable of scholastic achievement proved to be statistically significant ($t=7.37$, $df=1,194$, $p<.001$). Students at the University of Maryland scored higher on SATS than their peers from Mount Saint Mary's College. The range of first semester GPA's for the total freshmen sample in the study was .33 to 4.00 with a mean 2.56 (SD=.79). For the University of Maryland students, first semester GPA mean

was 2.72 (SD=.87). Mount Saint Mary's College had a first semester GPA mean of 2.41 (SD=.67). The difference between schools on first semester GPA was statistically significant ($t=2.91$, $df=1,191$, $p<.01$). University of Maryland students demonstrated higher first semester GPA's than the freshmen sample at Mount St. Mary's College. University of Maryland freshmen were significantly higher on measures of academic achievement than students at Mount Saint Mary's College.

Predictor Variables

The predictor variables attachment and temperament were assessed by the Parental Bonding Instrument (Parker, Tupling & Brown, 1979) and The Revised Dimensions of Temperament Survey - Adult (Lerner, Palermo, Spiro & Nesselroade, 1982) respectively. Using the total sample of freshmen students, means and standard deviations for the predictor variables are presented for each subscale. (See Table 3 for a Summary of Scores for Total Sample). Normative data on the PBI were not available for comparison.

The predictor variable attachment was measured by the two subscales of the Parental Bonding Instrument, care and overprotection. Attachment was defined by high scores on the subscale care and low scores on the overprotection subscale. The possible range of scores for both

Table 3

Means and Standard Deviations for Predictor and Criterion Variables for Total Sample (N=261)

Variable (Range of Possible Scores)	Normative* Mean	Normative* SD	Sample Mean	Sample SD
Revised Dimensions of Temperament Scale				
Activity Level - General (7-28)	19.1	4.1	19.10	4.24
Activity Level - Sleep (4-16)	10.8	3.7	11.33	3.42
Approach/Withdrawal (7-28)	21.1	3.5	19.01	3.80
Flexibility/Rigidity (5-20)	15.5	2.7	14.62	2.67
Mood (5-20)	24.9	3.8	24.17	4.04
Rhythmicity - Sleep (6-24)	13.6	3.9	13.15	3.58
Rhythmicity - Eating (5-20)	12.7	3.7	12.20	3.59
Rhythmicity - Daily Habits (5-20)	12.2	3.7	11.51	2.85
Distractibility (5-20)	12.0	3.0	10.98	2.85
Persistence (3-12)	8.7	1.7	8.09	1.84

Table 3 (cont.)

Variable (Range of Possible Scores)	Normative* Mean	Normative* SD	Sample Mean	Sample SD
Parental Bonding Instrument (1-4)				
Overprotection Scale	-	-	1.02	.62
Care	-	-	2.24	.67
Student Adjustment College Questionnaire (1-9)				
Goal Attainment	6.01-7.10	-	6.01	1.10
Personal Emotional Adjustment	6.01-7.01	-	6.31	1.23
Social Adjustment	6.10-6.33	-	6.04	1.32
Academic Adjustment	7.01-7.01	-	7.01	1.30
Perceived Social Support (1-20)				
Friends			15.57	4.09

Note: Normative means and standard deviation present where available

subscales, care and overprotection, is 0 ("Very Unlike") to 3 ("Very Like").

The range of obtained scores for the total sample on the subscale care was .18 to 3.00 with a mean 2.24 and SD (.67). The mean score for the total sample indicated that students' perceptions of the relationship with parents was seen as warm, affectionate, and caring. On the overprotection subscale, the range of scores was 0 to 2.9 (SD=.62). These scores reflect that the sample population did not perceive the early relationship with parents to be one that was overbearing or overprotective but one that was predominantly caring (See Table 3).

Temperament, as a predictor variable, was conceptualized by 10 dimensions of behavioral style as measured by the DOTS-R by Windle and Lerner (1986). For each temperament dimension except distractibility, higher scores reflect higher levels for each attribute. However, a higher score on the distractibility subscale indicates low distractibility. The scores obtained for the total sample on the temperament subscales were similar to the normative sample (See Table 3 for Summary of Subscale Scores). For activity level-general, the motor component in one's functioning, the mean score for the sample indicated that motor functioning in daily activities was at a moderate level. Activity level-sleep or movement during sleep, was also at a moderate level for the sample. The scores for the freshman students in the sample

population, on the subscale approach/withdrawal, reflected a behavioral style that was more approach oriented when encountering a new situation. That is, their behavioral response was to move toward the experience rather than to withdraw or reflect before getting involved. The mean score for the sample on the subscale flexibility/rigidity indicated that these freshmen did adapt to or accommodate their daily life style to the schedule set forth by the demands of college. The subscale mood measured the emotional response to a stimulus, with a higher score indicating a more positive mood or response. The high scores suggest that this sample responded positively to situations or experiences. The temperament, rhythmicity-sleep measured regularity of sleeping behavior. The mean obtained by the sample population was not significantly different from the normative sample. These scores suggest that these freshmen were fairly regular in their sleeping patterns while at college. The temperament rhythmicity-eating indicated regularity in eating behavior. The scores obtained by the freshmen sample indicated that the eating patterns tended to be consistent on a daily basis. The subscale rhythmicity of daily habits assessed regularity in one's daily habits. The scores obtained by the freshmen suggested regularity in the daily habits (eating, sleeping, energy level) in regard to college living. For the subscale distractibility, a high score is indicative of greater attention or less distractibility.

The scores for this sample of college freshmen showed a high level of concentration or less distractibility. Lastly, the temperament subscale persistence measured involvement in an activity. The scores obtained suggested a moderate level of persistence or sustained involvement in college activities by the freshmen sample.

Predictor Variables by School

In comparing schools on the predictor variables of attachment and temperament, significant differences were found (See Table 4 and Appendix A, Table A-5). For attachment, a statistically significant difference between schools was calculated for the subscale care ($t=-2.06$, $df=1,231$, $p<.05$). Mount Saint Mary's College students obtained a mean score of 2.32 (SD=.62) while University of Maryland students obtained a mean score of 2.14 (SD=.71), indicating that freshmen students from Mount Saint Mary's College perceived their parents to have been more caring during the early child-parent relationship. There was no statistical significance between schools on the subscale overprotection. Statistically significant differences were found between schools on several of the attributes of temperament. For the attribute approach/withdrawal, University of Maryland students appeared to be more approach oriented in addressing situations faced in a college environment ($t=2.12$, $df=1,236$, $p<.05$). The students at the University of Maryland obtained a mean

Table 4

Differences Between Schools on Predictor Variables

	University of Maryland		Mount Saint Mary's	
Variables	Mean	SD	Mean	SD
Attachment Care	2.15	.71	2.32	.62
Temperament				
Approach/Withdrawal	20.45	4.00	19.44	3.63
Rhythmicity-				
Daily Habits	11.10	3.00	12.00	3.00
Distractability	12.00	3.00	11.00	3.00

score of 20.45 (SD=4.0) while Mount St. Mary's College students had a mean score of 19.44 (SD=3.62). The temperament dimension of rhythmicity of daily habits was significantly higher for Mount St. Mary's College students ($t=-2.19$, $df=1,238$, $p<.05$) with a mean score of 12 (SD=3.0). University of Maryland freshmen obtained a mean score of 11.1 (SD=3.0). Lastly, a statistical difference was detected between schools for the temperament dimension of distractibility ($t=2.91$, $df=1,247$, $p<.01$). Scores for the students at the University of Maryland suggested a greater ability to stay on task (Mean=12.0, SD=3.0) than Mount Saint Mary's College students (Mean=11.0, SD=3.0).

Criterion Variable

The criterion variable adjustment was measured by the Student Adaptation to College Questionnaire (SACQ) (Baker & Siryk, 1986) and the Perceived Social Support-Friends Scale (PSS-FR) (Procidano & Heller, 1983). The construct of adjustment as the criterion variable was conceptualized as the academic adjustment to the educational demands specific to the college experience; social adjustment to interpersonal-societal demands within a residential community; personal-emotional adjustment to the college experience; goal commitment/institutional attachment; and the perception of social support provided by friends at college.

The SACQ is composed of four subscales measuring various aspects of adjustment to the demands of college life. The subscales are academic adjustment, social adjustment, personal-emotional adjustment and goal commitment/institutional attachment. A minimum score of 1 with a maximum score of 9 was possible on all subscales with a higher score reflecting better adjustment. The mean scores of the sample in this study were compared to the normative sample reported by Baker and Siryk (1986). Table 5 outlines the summary of normative means and sample means, and standard deviations obtained for the research sample on the SACQ. Because normative data were calculated on the sum of item responses rather than on average scores used in this study, the normative means

Table 5

Normative and Sample Means for the Student Adaptation to College Questionnaire Subscales

Scale	Range of Normative Means	Sample Means	SD
	(Possible Range of Scores is 1 to 9)		
Academic Adjustment	6.01 - 7.10	6.01	1.10
Social Adjustment	6.01 - 7.01	6.31	1.23
Personal-Emotions Adjustment	6.10 - 6.33	6.04	1.32
Goal Commitment\ Institutional Attachment	7.01 - 7.11	7.01	1.30

were divided by the number of items of each scale in order to make the data from this sample and the normative sample comparable. Baker and Siryk (1986) provided normative data from ten samples of first semester freshmen from private colleges. Therefore a normative range was used with the lowest and highest sample means to compare the data in this study with the normative sample.

The academic adjustment subscale assessed attitude, motivation, satisfaction and success of efforts towards academic requirements. A score range from 2.0 to 8.60 was obtained with mean of 6.01 (SD=1.1). The mean score indicated that students were within an average range of academic adjustment and compared favorably with the

normative sample of freshman students. The social adjustment subscale tapped the involvement, satisfaction and the success of social relationships on campus as well as the adaptation with social relocation from home. Thetotal sample had a range of scores from 2.6 to 8.8 with a mean of 6.31 (SD=1.23). These scores indicated that on the average, the sample population adapted socially to the college experience and compared favorably to the normative sample. Personal-emotional adjustment reflected both the psychological and physical adjustment to the demands of college living. The range of scores for this subscale was a minimum score of 1.9 and a maximum of 9.0 with a mean of 6.04 (SD=1.32). The mean score for the personal-emotional adjustment subscale indicated above average affective and physical adjustment to college living. Goal commitment/ institutional attachment measured attitude and satisfaction in college in general and in the specific institution of enrollment. For this subscale, the total sample had a range of scores from 2.2 to 9.0 with a mean of 7.01 (SD=1.3). The scores measuring college commitment and attachment reflected a positive level of satisfaction with being in college in general and in the specific choice of college, the research sample compared favorably to the normative sample.

Perceived social support from friends assessed the extent to which an individual perceived that his/her needs were being met by friends. As a measure of adjustment,

the range of scores obtained on the PSS-FR was 3 to 20 with a mean score of 15.57 and a standard deviation of 4.10. The results of these scores indicated that the freshmen students in this sample perceived that their need for support, information and feedback was provided by friends at college thereby reflecting adjustment. Normative data were not available for comparison.

Criterion Variables by School

In comparing schools on criterion variables, no statistical significance was found. The data for first semester freshmen at both the University of Maryland and Mount Saint Mary's College indicated comparable levels of adjustment on all five components of adjustment.

Relationship of Temperament to Attachment

The purpose of the following analyses was to determine the relationship between temperament and the perceived quality of the early attachment relationship. Temperament was defined as the behavioral style of an individual measured by ten attributes: activity level-general, activity level-sleep, approach/withdrawal, flexibility/rigidity, mood, rhythmicity-sleeping, rhythmicity-eating, rhythmicity-daily habits, distractibility, and persistence. The construct attachment was defined by two dimensions, care and overprotection which are influential factors contributing

to the early attachment relationship. Care was defined as affection, emotional warmth, empathy and closeness while overprotection was defined as control, overprotection, intrusion, excessive contact, infantilization and prevention of independent behavior. Hypotheses were formulated separately for each of the two dimensions of attachment. Separate multiple regressions were conducted for each of the two dimensions of attachment with the ten variables of temperament entered in a step-wise fashion (See Table 6 for Summary of Step-Wise Multiple Regressions).

Hypothesis 1: The temperament clusters of rhythmicity, approach, positive mood, low distractibility and persistence will predict care.

The first regression for attachment was conducted for the dimension care. A positive direction for the criterion variable was indicative of high care. As hypothesized rhythmicity-eating, positive mood, and low distractibility were statistically significant in predicting care ($F=21.48$, $df=3,257$, $p=<.001$) (See Table 6). These three variables together accounted for 20% of the variance in care. A positive mood accounted for 13% of the variance in care ($F=39.50$, $df=3,257$, $p<.001$). Low distractibility accounted for an additional four percent of the variance ($F=12.93$, $df=3,257$, $p<.001$).

Table 6

Summary of Step-Wise Multiple Regression Analyses Predicting Attachment by Temperament Dimensions

Attachment	Step	Temperament Dimension	Mult. R.	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Care	1	Mood	.36	.13	39.49	.13	39.49***	.36***
	2	Distractibility	.42	.17	27.12	.04	12.30***	.19***
	3	Rhythmicity-Eating	.45	.20	21.48	.03	8.59**	.25**
Over-protection	1	Mood	.25	.06	16.55	.06	16.55***	-.25***
	2	Flexibility	.31	.10	13.93	.04	10.69*	-.24*
	3	Rhythmicity-Eating	.36	.13	13.02	.03	10.23**	-.19**
	4	Persistence	.38	.15	11.02	.01	4.47**	-.15**

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 6 (cont.)

Note. [1] The temperament dimensions of Activity Level-General; Activity Level-Sleep; Approval; Rhythmicity-Sleep; and Rhythmicity-Daily Habits did not significantly predict with any of the subscales on the PBI.

[2] Correlation between high Care and low Overprotection was .56.

Rhythmicity-eating accounted for an additional three per cent of the variance ($F=8.59$, $df=3$, 257, $p<.01$). Rhythmicity-sleeping, rhythmicity daily-habits, approach and persistence did not predict at a statistically significant level (See Appendix D, Table D-1 for correlations of predictor and criterion Variables).

Hypothesis 2: The temperament clusters of rhythmicity, approach, positive mood, low distractibility and persistence will predict low overprotection.

The second dimension of attachment was overprotection. As stated earlier, a separate hypothesis was formulated for overprotection. A negative direction for the criterion variable was indicative of low overprotection. Positive mood and rhythmicity-eating were statistically significant in predicting low overprotection

as expected. Although not predicted, flexibility and persistence were statistically significant in predicting low overprotection ($F=11.01$, $df=4,256$, $p<.001$) (See Table 6). These four variables together accounted for 15% of the variance in low overprotection. A positive mood accounted for six percent of the variance ($F=16.55$, $df=4,256$, $p<.001$) with flexibility accounting for an additional four percent of the variance ($F=10.69$, $df=4,256$, $p<.001$). Rhythmicity-eating added an additional three percent variance ($F=10.23$, $df=4,256$, $p<.01$) and persistence added one percent variance in low overprotection. Rhythmicity-sleeping and daily-habits, approach and low distractibility did not predict statistically for low overprotection as hypothesized.

Relationship of Temperament to Adjustment

As outlined in Chapter Three, temperament was hypothesized to be influential in predicting adjustment in college. The purpose of these analyses was to determine the strength of the relationship between temperament and college adjustment. Temperament, as the characteristic style of an individual, was assessed by the behavioral attributes: activity level-general, activity level-sleep, approach/withdrawal, flexibility/ rigidity, mood, rhythmicity-sleep, rhythmicity-eating, rhythmicity-daily habits, distractibility, and persistence. The construct adjustment was defined as academic adjustment, social

adjustment, emotional-personal adjustment, goal commitment/ institutional attachment and perceived social support by friends. Hypotheses were formulated separately for each of the five components defining the construct of adjustment. Separate multiple regressions were conducted for each of the five components of adjustment with the ten dimensions of temperament entered in a step-wise manner (See Table 7 for a Summary of Multiple Regressions).

Hypothesis 3: The temperament dimensions of approach, flexibility, positive mood, persistence, and low distractibility will predict academic adjustment.

Academic adjustment, as a component of college adjustment was conceptualized as one's attitude, motivation, success and satisfaction towards academics in college. The temperament dimensions of flexibility, persistence, and low distractibility were statistically significant in predicting academic adjustment. Activity level-general and rhythmicity-daily habits, although not anticipated, were also significant in predicting academic adjustment ($F13.92$, $df=5,255$, $p<.001$) (See Table 7). Together, these five variables accounted for 21% of the variance in academic adjustment. It was not surprising that distractibility accounted for 14% of the variance in academic adjustment ($F=42.91$, $df=5,255$, $p<.001$).

Table 7

Summary of Step-Wise Regression Predicting Adjustment by Temperament Dimensions

Adjustment	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Academic	1	Distract.	.38	.14	42.91	.14	42.91***	.38***
	2	Flexibility	.41	.17	25.58	.02	7.22**	.19**
	3	Activity Level-General	.43	.18	19.40	.02	6.04*	-.25*
	4	Rhyth. Daily Habits	.45	.20	16.22	.02	5.66*	.16*
	5	Persistence	.46	.21	13.92	.01	3.94	.29**
Social	1	Approach	.45	.20	65.83	.20	65.83***	.45***
	2	Mood	.53	.28	50.41	.08	28.10***	.44***
	3	Flexibility	.57	.33	41.59	.05	17.49***	.36***
	4	Persistence	.59	.35	33.92	.02	7.69**	.19**

Table 7 (cont.)

Adjustment	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Personal/	1	Flexibility	.35	.12	36.38	.12	36.38***	.35***
Emotional	2	Rhyth.-Eating	.45	.20	32.07	.08	24.47***	.28***
	3	Activity Level-Sleep	.47	.22	24.66	.02	8.07**	-.24**
	4	Distract.	.49	.24	19.81	.01	4.31*	.22*
Goal	1	Mood	.41	.17	52.32	.17	52.32***	.41***
Attainment	2	Flexibility	.49	.24	41.63	.08	25.90***	.35***
	3	Persistence	.52	.27	31.09	.02	7.82**	.16**
	4	Approach	.53	.27	24.60	.01	4.02*	.34*
Perceived	1	Mood	.44	.20	63.73	.20	63.73***	.44***
Social	2	Approach	.48	.23	38.22	.03	10.39**	.34**
Support	3	Rhyth.-Eating	.49	.24	27.32	.01	4.49*	.20*

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 7 (cont.)

Note. [1] The temperament dimension of Rhythmicity - Sleep did not significantly predict with any of the attachment subscales on the SACQ. See Appendix E for correlations among adjustment factors.

Flexibility added an additional two percent of the variance ($F=7.22$, $df=5,255$, $p<.01$) with persistence accounting for only one percent of the additional variance ($F=3.94$, $df=5,255$, $p<.05$) for academic adjustment. Surprisingly, activity level-general and rhythmicity-daily habits each added an additional two percent of the variance to academic adjustment ($F=6.03$, $df=5,255$, $p<.05$; $F=5.66$, $df=5,255$, $p<.05$, respectively). The relationship between activity level-general and academic adjustment is a negative one, such that the higher the level of activity, the lower the adjustment to academic demands. The temperament dimensions of approach and positive mood did not statistically contribute to academic adjustment as hypothesized. Therefore, low distractibility, a more flexible behavioral style, a moderate activity level, persistence and regularity of daily habits were associated with adjustment to the academic demands experienced in college.

Hypothesis 4: The temperament dimensions of activity level-general, low distractibility, flexibility, and positive mood will have a positive relationship to social adjustment.

Social adjustment was conceptualized as the extent, involvement, success and satisfaction with social activities and social relationships in college. It also includes the adjustment to social relocation from home and family. As expected, flexibility and positive mood were statistically significant in predicting social adjustment. Although not hypothesized, the temperament dimensions of approach and persistence were also statistically significant in predicting social adjustment for college freshmen. Collectively, approach, mood, flexibility, and persistence accounted for 35% of the variance in social adjustment ($F=33.92$, $df=4,256$, $p<.001$) (See Table 7). Approach accounted for 20% of the variance ($F=65.83$, $df=4,256$, $p<.001$) while mood added an additional eight percent of the variance ($F=28.10$, $df=4,256$, $p<.001$). Flexibility accounted for an additional five percent ($F=17.49$, $df=4,256$, $p<.001$) and persistence added two percent ($F=7.69$, $df=4,256$, $p<.01$). High activity level-general and low distractibility did not contribute in predicting social adjustment in college as anticipated. Therefore, the data indicated that freshmen who were approach oriented, positive in mood, flexible in behavior

style, and persistent scored higher on the subscale assessing adjustment to the interpersonal-societal demands of college life.

Hypothesis 5: Temperament clusters of approach, low distractibility, positive mood, flexibility and persistence will have a positive relation to personal-emotional adjustment.

Personal-emotional adjustment as a component of adjustment in college measured both the psychological and physiological reactions to the college experience. As such, it tapped the degree to which the student might experience stress along with somatic complaints. The temperament dimensions of low distractibility and flexibility were significant in predicting personal-emotional adjustment as expected. Unexpectedly, rhythmicity-eating and activity level-sleep were also significant in predicting the physiological and psychological adjustment to college life. These dimensions together accounted for 22% of the variance in personal-emotional adjustment ($F=19.81$, $df=4,256$, $p<.001$) (See Table 7). Flexibility ($F=36.38$, $df=4,256$, $p<.001$) was responsible for 12% of the variance reported in personal-emotional adjustment while rhythmicity-eating ($F=24.27$, $df=4,256$, $p<.001$) added an additional eight percent. Activity-level-sleep ($F=8.07$, $df=4,256$, $p<.01$)

added two percent of the variance to personal-emotional adjustment while low distractibility ($F=4.31$, $df=4,256$, $p<.05$) added only one percent. Although both mood and persistence were expected to be predictive of personal-emotional adjustment for college freshmen, those variables did not prove to be statistically significant. Flexibility, rhythmicity in eating habits, low level of motor activity during sleep and low distractibility appeared to be more influential in determining personal-emotional adjustment to the physiological and psychological demands of living at college during the freshman year.

Hypothesis 6: The temperament clusters of flexibility, activity level-general, approach, low distractibility and persistence will have a positive relationship to goal commitment/institutional attachment.

Goal commitment and institutional attachment were conceptualized as the relationship or bond between the student and the college of attendance. As hypothesized, flexibility, approach, low distractibility and persistence were significant. Twenty-eight percent of the variance in goal commitment/institutional attachment was accounted for by mood, flexibility, persistence and approach ($F=24.60$, $4,256$, $p<.001$) (See Table 7). A positive mood accounted

for 17% of the variance ($F=52.32$, $df=4,256$, $p<.001$) with flexibility adding an additional eight percent ($F=25.90$, $df=4,256$, $p<.001$). Persistence ($F=7.82$, $df=4,256$, $p<.01$) added two percent while approach ($F=4.02$, $df=4,256$, $p<.05$) accounted for an additional one percent of the variance in goal commitment. The expectation that a high activity level in general would be predictive in determining goal commitment was not supported. This may be partially explained by the high correlation of activity level - general with low distractibility and persistence. In fact the unique contribution of activity level - general is reduced with the addition of low distractibility and persistence to the equation (See Appendix D, Table D-1 for correlations of predictor and criterion variables). In predicting a sense of belonging, commitment or attachment to college as a whole, a behavioral style that included a positive mood, flexibility in adaptation, persistence and a tendency to approach new situations was more significant.

Hypothesis 7: Temperament clusters of activity level-general, flexibility, positive mood, low distractibility, approach, and persistence will relate positively to perceived social support from friends.

For the purposes of this study, perceived social support was conceptualized as a component of adjustment to college. Perceived social support was defined as the extent to which an individual perceives that his or her needs for support are being met by friends. As predicted, mood and approach were significant in predicting perceived social support from friends. The temperament dimension rhythmicity-eating, although not hypothesized, was significant. Mood, approach and rhythmicity-eating together accounted for 24% of the variance in perceived social support from friends ($F=27.32$, $df=3,257$, $p<.001$) (See Table 7). Mood alone accounted for 20% of the variance ($F=63.73$, $df=3,257$, $p<.001$). Approach accounted for an additional three percent ($F=10.39$, $df=3,257$, $p<.01$) of the variance and rhythmicity-eating accounted for an additional one percent ($F=4.49$, $df=3,257$, $p<.05$). Activity level-general, flexibility, low distractibility and persistence were not statistically significant temperament variables as anticipated in predicting perceived social support from friends. However, a positive mood and an approach orientation were significantly influential in predicting perceived social support from friends.

Relationship of Attachment to Adjustment

The literature on attachment theory suggests that the attached infant is more comfortable in the process of

exploring a novel situation and as such more likely to make the adjustment to that particular environment. The purpose of the following analyses was to determine the strength of the relationship between attachment and adjustment. Attachment measured an individual's perception of the early parent-child relationship. Attachment was defined by two dimensions, care and overprotection. Adjustment to college was conceptualized by five components. The five components of adjustment to college were academic adjustment, social adjustment, personal-emotional adjustment, goal commitment/institutional attachment, and perceived social support from friends. Hypotheses were formulated separately for attachment predicting adjustment and attachment predicting perceived social support. Separate multiple regressions were also conducted for adjustment and perceived social support with the two components of attachment (care and overprotection) entered in a step-wise manner (See Table 8 for a Summary of Multiple Regressions).

Hypothesis 8: High care and low overprotection will relate positively to academic adjustment.

Academic adjustment measured the students attitude, motivation, and success toward academic goals and performance in college as well as the satisfaction with

the effort put forth. Care predicted academic adjustment as predicted ($F=25.80$, $df=1,258$, $p<.001$) (See Table 8), accounting for nine percent of the variance in perceived academic adjustment. Low overprotection did not reach a statistically significant level. The perception of a caring relationship in early childhood between parent and child was related to adjustment to the academic demands of college.

Hypothesis 9: High care and low overprotection will relate positively to social adjustment.

Social adjustment assessed the satisfaction and success of social activities and social relationships at college as well as the adaptation to the relocation from home. Care, a dimension of attachment, was statistically significant in predicting social adjustment ($F=29.21$, $df=1258$. $p<.001$) (See Table 8). Overprotection, however was not significant. Care accounted for 10% of the variance in predicting social adjustment.

Hypothesis 10: High care and low overprotection will relate positively to personal-emotional adjustment.

Personal-emotional adjustment measured both the physical and psychological adjustment to the stressors

Table 8

Summary of Step-Wise Multiple Regression Analyses Predicting Adjustment by Attachment

Adjustment	Step	Attachment	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Academic	1	Care	.30	.09	25.80	.09	25.80***	.30***
Social	1	Care	.32	.10	29.22	.10	29.22***	.32***
Personal/ Emotional	1	Care	.38	.14	42.55	.14	42.55***	.37***
	2	Over-protection	.41	.17	26.06	.03	8.36***	-.35***
Goal Attainment	1	Care	.30	.09	25.12	.09	25.12***	.30***
Perceived Social Support	1	Care	.34	.12	34.08	.12	34.08**	.34**

* $p < .05$ ** $p < .01$ *** $p < .001$

Note. Overprotection did not significantly predict with academic, social, goal attainment or perceived social support.

sometimes experienced in college. Both dimensions of care and overprotection together accounted for 17% of the variance in personal-emotional adjustment. Care ($F=42.54$, $df=1,259$ $p<.001$) accounted for 14% of the variance while overprotection ($F=8.36$, $df=2,258$, $p<.01$ accounted for only an additional three percent of the variance in personal-emotional adjustment to college (See Table 8). The perception of being cared for but not overprotected in early childhood, was related to adjustment. Of the two, care accounted for a far greater proportion of the variation.

Hypothesis 11: High care and low overprotection will relate positively to goal commitment/institutional attachment.

Satisfaction with college and attachment to the college community defined goal commitment/institutional attachment. Care was statistically significant in predicting this aspect of adjustment (($F=25.12$, $df=1,259$, $p<.001$) (See Table 8), accounting for nine percent of the variance. Low overprotection, however, did not reach significance in predicting goal commitment/institutional attachment as hypothesized (See Appendix D, Table D-1 for correlations of predictor and criterion variables).

In analyzing the relationship between attachment and adjustment, it appeared that high levels of care were

strongly associated with reporting a sense of satisfaction with and adjustment to the demands of college. Adjustment to the social atmosphere of college, and adjustment to the academic requirement of a college curriculum were attributed to the level of care a student perceived in the early parent-child relationship. This trend was also evident in reporting a sense of commitment to the decision to pursue a college career and an attachment to the college community. Interestingly, one's perceptions of a caring parent who was not overprotective during childhood development was associated with reporting personal and emotional adjustment to the novel experiences of college life.

Hypothesis 12: High care and low overprotection will relate positively to perceived social support.

Perceived social support from friends as a measure of adjustment to college was significantly predicted by care ($F=34.07$, $df=1,259$, $p<.001$) (See Table 8). Care accounted for 12% of the variance in perceived social support from friends. Thus, the perception of a caring parent who was supportive in early childhood was related to the perceived support first semester freshmen students perceived they received from friends in a time of need.

Post Hoc Analyses

While not the main focus of the study, it was interesting to investigate the influence of temperament on academic achievement in early adulthood. Specifically, the relationship of temperament with high school GPA, SAT scores and first semester college GPA were statistically analyzed. As presented in Chapter II and III, it is difficult to predict the influence of temperament on academic achievement of college students since the focus of the literature on this variable has been on young children and not young adults.

In examining the characteristics of the total sample, it was noted that differences existed between gender and school on several demographic and predictor variables. Because of these differences, additional statistical analyses were conducted to determine their impact on predicting adjustment for young adults in college.

Within this section, post hoc analyses will be organized as follows: (a) the relationship of temperament and academic achievement (high school GPA, SAT scores, first semester GPA), (b) differences by school and gender, and (c) summary.

Relationship of Temperament and Academic Achievement

The purpose of the following analyses was to determine the relationship between temperament and academic achievement in this sample of young adults. As

stated earlier, the investigation of the influence of temperament on academic achievement was strictly exploratory since past literature has focused on the relationship of temperament and academic achievement of young children. Temperament was defined as the behavioral style of an individual as measured by ten attributes: activity level-general, activity level-sleep, approach/withdrawal, flexibility/rigidity, mood, rhythmicity-sleeping, rhythmicity-eating, rhythmicity-daily habits, distractibility, and persistence. The dimensions of academic achievement for the present study were high school GPA, SAT scores, and first semester GPA in college. High school GPAs were only available for the freshman students at the University of Maryland. Mount Saint Mary's College did not use high school GPA as criterion for freshman admission. Separate multiple regressions were conducted for the three measures of academic achievement with the ten variables of temperament entered in a step-wise fashion (See Table 9 for Summary of Step-wise Multiple Regressions).

High School GPA

The first regression for achievement was conducted for high school GPA for University of Maryland freshmen. Flexibility/rigidity, mood, and persistence were statistically significant in predicting high school GPA ($F=5.40$, $df=1,114$ $p<.01$) (See Table 9). These three

Table 9

Summary of Step-Wise Multiple Regression Analyses Predicting High School GPA and First Semester GPA by Temperament Dimensions

Measure	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
HSGPA	1	Flexibility	.19	.04	4.29	.04	4.29*	.19*
	2	Mood	.29	.09	5.43	.05	6.37*	-.18*
	3	Persistence	.35	.13	5.40	.04	4.94*	.18*
First Semester GPA	1	Distractibility	.18	.03	8.85	.03	8.85**	.18*
	2	Rhythmicity-Sleep	.23	.05	7.00	.02	5.00*	.13**
	3	Activity Level-Sleep	.26	.07	6.01	.01	3.89*	.06*

* $p < .05$

** $p < .01$

*** $p < .001$

Table 9 (cont.)

Note. 1 The temperament dimensions of Approach and Distractbility did not significantly predict HSGPA.

2 Correlation between HSGPA and SAT was .58***

3 Correlation between first semester GPA and SAT was .46***

variables together accounted for 12% of the variance in high school grade point averages. Flexibility/rigidity accounted for 4% of the variance ($F=4.30$, $df=1,114$, $p<.05$). A positive mood accounted for 5% of the variance in high school GPA ($F=5.43$, $df=2,113$, $p<.05$). Persistence accounted for an additional 4% ($F=5.04$, $df=3,122$, $p<.05$). A behavioral style that is receptive and accommodating to change as well as persistent in completion of tasks appeared to be most predictive of academic achievement in high school.

SAT Scores

The second dimension of achievement was Scholastic Aptitude Test scores. Data from the multiple regression analysis indicated that temperament did not predict performance on SAT's.

First Semester College GPA

The third characteristic of achievement was first semester grade point average in college. A separate multiple regression was conducted for college GPA, entering the ten temperament attributes in a step-wise manner. Low distractibility, rhythmicity-sleep, and activity level-sleep were statistically significant in predicting first semester GPA ($F=6.01$, $df=3,257$, $p<.05$)(See Table 9). These three variables together accounted for 7% of the variance in academic performance during the first semester of the freshmen year. Low distractibility was responsible for 3% of the variance in GPA. Rhythmicity-sleep accounted for an additional 2% and activity level-sleep added 2% variance. It is not surprising the one's ability to remain focused on academic tasks would be reflected in academic achievement level. Nor is it surprising that the rhythmicity of sleep patterns would be influential in academic achievement. However, it is unclear as to why a high activity level during sleep would be positive in predicting academic performance during the first semester of college .

Differences by Gender and School

As noted earlier, there was a significant disproportion between the number of males and females represented in the student population in this study. Significant differences between schools on sample

characteristics and predictor variables were also noted. Therefore, t-tests were conducted for both gender and school on demographic and predictor variables to determine the significance of these variables.

For gender, statistically significant differences were found on demographic variables (age and first semester grade point average) and criterion variables (personal-emotional adjustment, goal commitment/institutional attachment and perceived social support) (See Appendix A, Table A-4 for gender differences). For the variable age, males tended to be slightly older (18.06 years) than females (17.88). Females achieved higher first semester GPA's (2.65) while male were lower (2.40) on first semester grade point average. On the criterion variable adjustment, females reported a greater sense of commitment to pursuing a college education and felt more attached to college than males. Females also reported a greater perception of perceived social support of friends when needed than males. However, for personal-emotional adjustment in college, males reported a greater level of adjustment to the physical and psychological demands of college than females.

As presented in the section of characteristic differences between schools, statistical significance was found between schools on the following demographic variables: number of high school friends; relatives

living in the area; distance from home and frequency of visits home. Likewise, statistically significant differences were found between schools on several predictor variables (See Appendix A, Table A-5 for school differences). Mount Saint Mary's College students were significantly higher on the care dimension of attachment, perceiving their parents to be more affectionate, empathic and caring than that reported by University of Maryland students. Mount Saint Mary's College students reported more rhythmicity in their daily routines or habits than Maryland students. On the other hand, University of Maryland students were significantly more approach oriented in their college environment and less distractible then Mount Saint Mary's College students. There was no statistical difference between schools on the criterion variable adjustment, such that both schools compared favorably in relation to the reported norms and in relation to each other on measures of adjustment to the demands of college life.

Multiple Regression Analysis with Gender and School

Because significant differences emerged between gender and schools on several demographic characteristics and predictor variables, the data were reanalyzed to include gender and school as predictor variables to determine their possible impact on the hypotheses set forth earlier. All of the previously reported multiple

regressions analyses were redone in a step-wise manner with gender and school included in the predictor variables. Tables 10, 11, and 12 present a summary of the multiple regression analyses with gender and school added as predictor variables.

In examining the relationship between temperament and the perceived quality of the early attachment relationship, school emerged as a predictor for the attachment component care. Although the addition of school increased the amount of variance in the multiple regression, school hdid not override the effect on the original temperament predictor variables of mood, distractibility and rhythmicity-eating. The emergence of school in the equation reflected that students from Mount Saint Mary's College perceived the quality of the early parent-child relationship to be significantly more caring than the students at the University of Maryland. Sending a child/student to a small private school is a selection factor. Gender and school had no effect for the attachment component overprotection.

In exploring the impact of gender and school on the relationship between temperament and adjustment in college, school and gender emerged as predictor variables on two of the five components of adjustment to college. School added to the predictability of social adjustment in college. The temperament dimensions of approach, mood, flexibility, and persistence maintained their original

Table 10

Summary of Step-Wise Multiple Regression Analyses Predicting Attachment by Temperament Dimensions Gender and School

Attachment	Step	Temperament Dimension	Mult. R.	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Care	1	Mood	.36	.13	39.49	.13	39.49***	.36***
	2	Distractibility	.42	.17	27.12	.04	12.30***	.19***
	3	School	.45	.20	21.79	.03	9.37**	-.13**
	4	Rhythmicity-Eating	.48	.23	18.79	.02	8.01**	.25**
Over-protection	1	Mood	.25	.06	16.55	.06	16.55***	-.25***
	2	Flexibility	.31	.10	13.93	.04	10.69*	-.24*
	3	Rhythmicity-Eating	.36	.13	13.02	.03	10.23**	-.22**
	4	Persistence	.38	.15	11.02	.01	4.47**	-.15**

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 10 (cont.)

Note. [1] The temperament dimensions of Activity Level-General; Activity Level-Sleep; Approval;Rhythmicity-Sleep; and Rhythmicity-Daily Habits did not significantly predict with any of the subscales on the PBI.

[2] Correlation between Care and Overprotection was .56.

position in the regression equation with school accounting for an additional two percent of the variance in social adjustment. It is not surprising that the environment inherent in a small private college like Mount Saint Mary's College would be conducive to social adjustment particularly if one's temperament is approach oriented, flexible in nature and positive in mood.

Gender emerged as a predictor variable for personal-emotional adjustment to college life and perceived social support from friends. While only adding three percent of the variance to the predictability of personal/emotional adjustment, the inclusion of gender introduced an additional temperament dimension to the regression equation. Mood surfaced as a significant predictive variable adding an additional one percent variance. The data analyses suggested that a behavioral style that was flexible, rhythmic in eating patterns, one with a low level of activity during sleep, focused and a positive

Table 11

Summary of Step-Wise Regression Predicting

Adjustment by Temperament Dimensions, School and Gender

Adjustment	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Academic	1	Distract.	.38	.14	42.91	.14	42.91***	.38***
	2	Flexibility	.41	.17	25.58	.02	7.22**	.19**
	3	Activity Level-General	.43	.18	19.40	.02	6.04*	-.25*
	4	Rhyth. Daily Habits	.45	.20	16.22	.02	5.66*	.16*
	5	Persistence	.46	.21	13.92	.01	3.94	.29**
Social	1	Approach	.45	.20	65.83	.20	65.83**	.45***
	2	Mood	.53	.28	50.41	.08	28.10***	.44***
	3	Flexibility	.57	.33	41.59	.05	17.49***	.36***
	4	Persistence	.59	.35	33.92	.02	7.69**	.19**

Table 11 (cont.)

Adjustment	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
	5	School	.60	.36	28.79	.02	5.75*	-.06*
Personal/	1	Flexibility	.35	.12	36.38	.12	36.38***	.35***
Emotional	2	Rhyth.-Eating	.45	.20	32.07	.08	24.47***	.28***
	3	Gender	.47	.22	24.79	.03	8.38**	-.13**
	4	Activity Level-Sleep	.50	.25	21.81	.03	10.22**	-.24**
	5	Distract.	.52	.27	18.56	.01	4.39*	.22*
	6	Mood	.53	.28	16.54	.01	4.98*	.20*
Goal	1	Mood	.41	.17	52.32	.17	52.32***	.41***
Attainment	2	Flexibility	.49	.24	41.63	.08	25.90***	.35***
	3	Persistence	.52	.27	31.09	.02	7.82**	.16**
	4	Approach	.53	.27	24.60	.01	4.02*	.34*

Table 11 (cont.)

Adjustment	Step	Temperament Dimension	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Perceived	1	Mood	.44	.20	63.73	.20	63.73***	.44***
Social	2	Gender	.49	.24	40.38	.03	13.86***	.25***
Support	3	Approach	.52	.27	31.35	.03	10.37***	.34**
	4	Rhyth.-Eating	.53	.28	25.32	.02	5.57*	.20*

*p <.05

**p <.01

***p <.001

Table 12

Summary of Step-Wise Multiple Regression Analyses Predicting Adjustment by Attachment, Gender and School

Adjustment	Step	Attachment	Mult. R	RSq.	F(Eqn)	RSq. Change	F(Change)	Corr.
Academic	1	Care	.30	.09	25.80	.09	25.80***	.30***
Social	1	Care	.32	.10	29.22	.10	29.22***	.32***
Personal/	1	Care	.38	.14	42.55	.14	42.55***	.37***
Emotional	2	Overprotection	.41	.17	26.06	.03	8.36***	-.35***
	3	Gender	.43	.18	19.30	.02	4.97*	.13*
Goal Attainment	1	Care	.30	.09	25.12	.09	25.12***	.30***
	2	Gender	.33	.11	16.30	.02	6.90**	.15**
Perceived	1	Care	.34	.12	34.08	.12	34.08***	.34**
Social Support	2	Gender	.42	.18	28.18	.06	19.80***	.25***

* $p < .05$ ** $p < .01$ *** $p < .001$

mood was predictive of personal emotional adjustment. Interestingly, males with that behavioral profile perceived themselves as more adaptable to the psychological and physiological demands of college life. For the adjustment component, perceived social support and gender accounted for an additional three percent of the variance. Even with gender as a predictor variable, temperament dimensions of positive mood, approach, and rhythmicity-eating remained significant in predicting perceived social support by friends, a component of adjustment to college life. What the data analyses indicates is that females with the temperament attributes of a positive mood, an approach orientation, and regularity in eating habits perceive greater social support from peers.

In examining the impact of school and gender on the relationship between the attachment (care and low overprotection) and adjustment, only gender emerged as an additional predictor variable for adjustment to college. Gender added slightly to the predictability of personal-emotional adjustment, goal attainment/institutional commitment and perceived social support. The attachment component care continued to be the most predictive factor of adjustment to the demands of college life. Gender accounted for an additional 2% of the variance in personal-emotional adjustment. For males, the perception of a warm and caring yet not overprotective

parent-child relationship was significant in facilitating physical and psychological adjustment during the transition period of leaving home and living away at college. Satisfaction and commitment to pursuing a college career (goal commitment/institutional attachment) was higher for females. Gender, however, while accounting for an additional one percent of the variance, did not override the predictability of attachment (care) Females who perceived the early parent-child relationship to be warm and caring were more committed and attached to college life. Female gender was more significant in tapping the degree of social support students perceived to be provided by friends. Gender accounted for an additional 6% of the variance in predicting perceived social support but again did not override the power of predictability for adjustment by attachment.

Overall, few significant differences were found between school and gender and those differences found did not modify the original hypotheses set forth in Chapter III nor did the differences significantly affect the findings of the original data analyses (See Appendix D, Table D-2 and Table D-3 for correlations of gender and predictor variables).

Summary

To summarize, this study was conducted to investigate the implications of early childhood relationships and

temperament on adult development. Specifically, the three research questions were: (1) what is the relationship between temperament and the perceived quality of the early attachment relationship, (2) what is the relationship between temperament and adjustment to college, and (3) what is the relationship between the perceived quality of early attachment relationships and adjustment to college. In general the results of the analyses indicate that specific temperament attributes are associated with perceived quality of early attachment, amd five dimensions of adjustment to college. The data also indicated that the attachment dimension care was highly predictive of several aspects of adjustment to college life. When school and gender were entered as predictor variables, school was not found to be a significant factor in predicting overall adjustment to college life. With respect to gender, the analyses showed that females were significantly higher in their commitment to pursue a college career (goal attainment/institutional attachment) while males were significantly higher in perceived personal emotional adjustment to college. The analyses of the data support the hypothesis that both temperament and attachment play an important role in the adjustment of young adults during the initial transition period of leaving home and entering college.

CHAPTER V

Discussion

The major focus of this research project involved empirically investigating attachment and temperament theory and its implication for adult adjustment. While vast research exists on theory and implications for attachment and temperament on adjustment, the research predominantly focuses on young children. Attachment theory postulates that the nature of the infant's first relationship with the primary caretaker is the foundation of normal development and impacts other aspects of child development. Research on the relationship of maladjustment or psychopathology and attachment suggests an important correlation between the young child's parental relationship and the capacity to develop affectional bonds in later stages of development. The role of temperament or behavioral style in child development also provides evidence that suggesting that temperament attributes relate to adjustment and on developmental psychopathology. Further, temperament has been found to influence parent-child interaction thus impacting the quality of the parent-child relationship.

While empirical investigations on the relationship of attachment and temperament indicate that these two constructs play a significant role in adjustment throughout the life span, little research exists that

actually examines the impact on adult development. The purpose of this research was to investigate the relationship between recollections or perceptions of early attachment and temperament in adulthood and the relationship of attachment and temperament to adjustment to college. The first few weeks of living in a college dormitory is a natural transition phase for young adults and one that can be conceptualized as analogous to the demands the young child must face in adjusting to a new school situation. It is for this reason that adjustment to the initial transition of first semester college freshmen was used in this study. The efforts of this research were to investigate and extend the two important developmental constructs of attachment and temperament from childhood into adulthood. Further, this study attempted to test the theory that the perceptions of the quality of the early-parent child relationship and temperament do impact adjustment in later development, specifically young adults.

Review of Findings

In statistically examining the constructs of attachment, temperament and adjustment of young adults, a number of signficant relationships were found. The results of this study show that the data support the hypotheses formulated regarding the relationship of

temperament to attachment, temperament to adjustment and attachment to adjustment.

The Relationship of Temperament to Attachment

A number of significant findings were obtained supporting the literature that temperament serves as a mediating factor in determining the quality of the early parent-child relationship. It was hypothesized that one's behavioral style or temperament would predict the quality of the attachment relationship, specifically care and overprotection. That is, a child whose temperament profile elicits positive interactions from a parent would be more likely to perceive the early parent-child relationship as one that was warm, nurturing and caring and not cold, distant, overprotective or overbearing. Furthermore, a child who adapts easily and experiences positive emotions will be more likely to perceive relationships in a formable light. Results of the analysis found that positive mood, low distractibility and rhythmicity in one's eating schedule was significant in predicting one's perception of the quality of the parent-child relationship. It is a logical assumption that an infant who projects a positive mood and is attentive during parent-child interaction will elicit and experience positive feedback from a parent. This positive and caring interaction between parent and child becomes the foundation for the internalized model of the parent-child

relationship. The parent-child relationship in turn is perceived by the child as warm, caring, nurturing and supportive. Although rhythmicity of eating has not been addressed specifically in the literature as a predictive temperament dimension, it does make sense that rhythmicity of eating would be a significant factor in attachment. Infants who are rhythmic in their feeding schedule provide the primary caretaker the opportunity to organize their daily living activities around the child's feeding schedule. A predictable schedule allows the parent to be available and responsive to the child's needs thereby facilitating attachment. Predictability is less stressful than constant change and this most definitely applies to early parenting. The research findings of this study support the literature on the relationship between temperament and quality of parent-child interaction (Dunn & Kendricks, 1980a, 1980b, 1982 Webster-Stratton & Eyberg, 1982) where it was found that mothers behaved differently with children of different temperamental characteristics. Mothers of children who were low in attention and non-accepting were more negative in affect toward the child thus affecting the quality of the parent-child relationship. Children who are positive in mood, attentive and provides some rhythmicity in their schedule will elicit positive interaction from the parent and thereby reinforce the parent for their responsiveness to

the child. It is logical that this response pattern would continue throughout childhood development.

School emerged as a predictor variable for the attachment component, care. In this study, students from a small private college (Mount Saint Mary's) perceived greater levels of nurturance and caring in the early parent-child relationship. In this instance, it may be that the student from a private college perceives the great financial effort extended by the parent as tangible evidence of the high quality of their relationship.

The second component of attachment that impacts the quality of the parent-child relationship is low overprotection. Low overprotection by the parent indicates that the parent encourages experiential learning for the infant or child and allows for independent behavior without excessive contact, infantilization or overprotection. That is, the parent allows the infant or young child to explore his/her environment in order to strengthen cognitive and social development. As hypothesized, temperament was predictive of low overprotection. Positive mood, flexibility, rhythmicity eating and persistence were most significant in predicting low overprotection. Again, this behavioral profile appears quite logical given that an infant who responds positively to new situations, is flexible toward changes in the environment and is persistent in their his/her efforts is not likely to require constant surveillance by

the parent. There is a level of trust and a sense of safety by the parent that allows the child to experience new challenges. The inverse is also true in that the child feels secure to explore new situations knowing the parent will be available if necessary. An early childhood example would be allowing the child to ride a bicycle for the first time. Given that the parent knows the child may fall several times, possibly getting hurt, the parent is not intrusive in allowing the child to have the new experience. Likewise for young adults, the college experience away from home encourages the older child to experience a new environment and challenging situations. The results of this analysis clearly indicate that temperament does play an important role in how young adults perceived the quality of early parent-child relationship and stands in support of the theory that temperament mediates the social interaction process that underlies the development and maintenance of the attachment bond between the infant and caretaker (Crockenberg, 1986; Rothbart & Derryberry, 1981).

The Relationship of Temperament to Adjustment

Temperament, as the characteristic style of an individual, was hypothesized to predict initial adjustment to college. For the purposes of this study, adjustment to college required adaptation in the following areas: academic demands, social activities and relationships,

personal-emotional demands of college life and goal commitment to college. Perceived social support from friends was judged as a component of social and emotional adjustment to college. The findings of this study do in fact support the literature that sees temperament as a powerful predictor of self-perceived psychosocial and socioemotional functioning. The following section will discuss each of the five components of adjustment and its relationship to temperament.

Social Adjustment

With social adjustment to college defined as the extent, involvement, success and satisfaction with social activities and social relationships in college, it was hypothesized that temperament would be a significant predictor. The results of the data analyses did indeed find that the temperament dimensions of positive mood and approach orientation were correlated to social adjustment. Flexibility and persistence were also found to be predictive of social adjustment. Looking at this cluster of temperament dimensions it appears logical that a young adult who responds to the demands and frequent changes in the social environment with flexibility and a positive mood, is one who would easily adjust to the environment as well as one who would be sought after and accepted by one's peers. A behavioral profile that includes approach orientation and persistence is also more likely to make

the adjustment to the social relocation from home. This young adult would be one who moves towards new social activities with persistent involvement. The results of this study support the theory set forth by Buss and Plomin (1985) that temperament sets the tone for initial interpersonal interactions and in turn structures the social environment in the way the individual presents oneself to others and that behavioral style can determine the social configuration of the environment.

Earlier research on social adjustment of young children by Martin et al. (1983) found that teachers ranked first grade students higher in terms of social adjustment with peers and adults when they were perceived by the teachers to be persistent and approach oriented. Self-ratings of temperament by adolescents (Hooker, Lenerz, East, Lerner, & Lerner, 1986) also reported approach, flexibility, positive mood and persistence to correlate with self-perceived competency in the social arena. Klein's (1988) exploration of the quality of interpersonal relationships of college freshmen also found approach, flexibility, and positive mood to be determinants of social adaptation to the college environment. It is interesting that social adjustment as measured by the perceptions of teachers in the rating of child temperament parallel the perceptions of adolescents and young adults as they rate their own temperament. In essence, the available evidence from the literature and

this study suggests that temperament impacts adaptation from infancy through college and that a behavioral profile of positive mood, flexibility, approach and persistence is conducive to the adaptation to the social demands in a school environment. These findings have significant implications for educators and mental health professionals in planning curriculum and in treatment programs. Obviously not all individuals will inherit a socially accommodating behavioral profile such as the one discussed. Therefore, professionals need to help structure and modify the environment to enhance social adjustment for the college student who encounters difficulty adjusting to the social demands of college.

Although school did emerge in the post hoc analyses as a predictor of social adjustment, it was slight and did not alter the correlations of temperament dimensions to social adjustment. The results of this study support the premise that there exists a relationship between temperament and psychosocial functioning that spans from early childhood to young adulthood.

Personal/Emotional Adjustment

Faced with major changes during the first semester of the freshman year, the adjustment to the physical and psychological demands of college living are an essential component to college adaptation. It was hypothesized that personal-emotional adjustment would be optimal for the

student whose temperament or behavioral style was to approach new situations and to respond to changes in a positive manner. Further persistence, attentiveness and flexibility were predicted to influence both physical and psychological adjustment.

The results of the study show that flexibility, attentiveness (low distractibility), rhythmicity of eating and low level of activity during sleep were significant temperament attributes predicting emotional and physical adjustment to college living for freshmen away from home for the first time. Emergence of these temperaments appears logical given that first semester students take on the responsibility of organizing their academic and social schedules as well as the responsibility of scheduling time to provide for their physical needs (e.g. rest, exercise and diet). A student who is flexible to changes in schedules and can maintain attention during change is less likely to experience stress during the early transition period of first semester. Additionally, the ability to self-regulate physiological necessities (eating and sleeping) also enhances adjustment and decreases dysfunction or maladjustment.

The research on temperament and psychopathology in child and adolescent development support the findings of this study. Research on temperament as a moderator of stress found that high distractibility and unpredictable behavioral style were strongly correlated with behavioral

difficulties in young children (Wertlieb, Weigel, Spring, & Feldstein, 1987). For adolescents, temperament dimensions of flexibility and low distractibility were found to be negatively correlated with depression (Windle, Hooker, Lenerz, East, Lerner, & Lerner, 1986). Klein (1988) in her work on temperament and adaptation to change found rigidity, negative mood and high distractibility associated with expressed feelings of depression, anxiety, and hostility by college freshmen in their new environment. The results of the analyses on the relationship between temperament and personal-emotional adjustment are supported by the literature on young children, adolescents and young adults. Further, these findings add to the literature supporting temperament as significant in buffering individuals from stress and maladjustment.

Post hoc analyses on the relationship of temperament to adjustment found that gender was predictive of personal-emotional adjustment. With the addition of gender in the regression equation, mood also emerged as a significant temperament variable. The addition of mood as a dimension adds support to the findings outlined above. For gender, males reported greater physical and psychological adjustment to the demands of college living. However, gender added a relatively small proportion to the variance accounted for personal-emotional adjustment. The literature reviewed on temperament and adjustment did not

reflect a sex differentiation. Examination of the specific items on the dimension of personal-emotional adjustment suggests the possibilty of a gender bias. For example, the items address weight gain/loss, anxiety and emotional expression. Females are more likely to disclose their true feelings in these areas thus reflecting negative adjustment according to the items presented in the personal-emotional subscale. Given this, theresults of these findings make it difficult to interpret the meaning of the statistical difference between gender.

With the knowledge that self-regulation plays a significant role in adjustment, post-secondary professionals in student personnel can offer new students guidance in how to schedule and manage time to reduce the impact of the physical and psychological demands of college living given their temperament profile.

Goal Commitment/Institutional Attachment

Goal commitment-institutional attachment was conceptualized as an adjustment factor in regard to the student's commitment to pursue a college career and the sense of belonging to a community comprised of their peers. It was hypothesized that a student who was approach oriented, flexible yet persistent would display greater commitment and attachment to college. It was also anticipated that low distractibility and a high activity level would be predictive. The data analyses did in fact

find that a behavioral profile of approach, flexibility and persistence were significantly correlated to college commitment and attachment, however activity level-general and low distractibility did not prove to be significant. In looking at the temperament profile from a statistical perspective, it is clear why activity level and low distractibility did not emerge as significant predictors. Both activity level-general and low distractibility significantly correlate with persistence. Activity level-general also correlated with approach and mood. Therefore, the variance that was anticipated to be accounted by activity-level general and low distractibility may have been absorbed by approach, mood and persistence. No literature was reviewed that addressed the influence of temperament on goal commitment for young children. In point of fact, little research exists for temperament and goal commitment/institutional attachment for young adults. Klein (1988) did examine the relationship of college involvement and temperament on adaptation. Klein (1988) found that involvement and satisfaction with college activities were predicted by approach, flexibility and positive mood. Together, Klein's research and the results of this study support the theory that temperament plays a role in adjustment for young adults in college. An understanding of the relationship of temperament and adjustment to college is

paramount for college counselors who provide academic guidance and therapeutic support to students.

Academic Adjustment

Academic adjustment, as a component of adjustment to college, was conceptualized as one's attitude and motivation towards academic requirements and goals as well as satisfaction with the effort expended toward meeting those requirements and goals. Because academic adjustment was rated by the student and was therefore a subjective perception, academic achievement or actual performance was also investigated. This analysis examined the relationship of temperament to actual performance.

It was hypothesized that the temperament dimensions of low distractibility, flexibility, and persistence would be predictive of self-ratings of academic adjustment. Positive mood and approach were also thought to be predictive of academic adjustment. The results of the analyses found low distractibility, flexibility and persistence to be significant temperament dimensions in how students rated their academic adjustment. Rhythmicity of daily habits and low activity level were also found to be important factors of academic adjustment. This behavioral profile is quite logical considering that attention and persistence are basic requirements for academic task completion. In addition to attention and persistence, if one is flexible to changes and demands,

they are more likely to accommodate and adapt to multiple subject requirements with varying deadlines. Although not hypothesized, rhythmicity of daily habits and activity level did appear to play an important role in self-perceived attitude, motivation and satisfaction with academic efforts. One's behavioral style that is rhythmic and not overly active in terms of motor functioning is more likely to schedule time appropriately and be physically attentive to academic assignments. Originally, it was hypothesized that approach and positive mood would be significant factors in predicting self-rating of academic adjustment. It appeared intuitive that a positive mood and approach orientation would be instrumental in seeking academic help when needed. These variables were not found to be significant, however, it must be noted that both approach and positive mood correlated highly with flexibility. Further approach was found to correlate with rhythmicity of daily habits and persistence. Therefore, flexibility, rhythmicity of daily habits and persistence may have absorbed the variance shared by approach and mood.

Literature on the relationship of temperament and academics for young children and adolescents focuses on academic achievement or actual academic performance rather than perceived adjustment to academics. In the literature the terms academic achievement and academic adjustment have been used interchangeably. Therefore, it was the

purpose of this study to take a separate look at temperament and actual academic performance. The intent of this analysis was simply exploratory and no hypotheses were formulated. High school grade point averages and first semester grade point averages were used as criterion for academic achievement.

As mentioned in Chapter III, high school grade point averages were only available for the freshman sample from the University of Maryland. Analysis of the data indicated that flexibility, mood and persistence were the three temperament dimensions moderately correlated with high school achievement. For academic achievement for first semester college grade point average for the total sample, low distractibility, rhythmicity of sleep and activity level of sleep were most predictive. Although difference among temperament dimensions differ between secondary and post-secondary levels, the existing literature on children and adolescents is supportive of both findings.

Flexibility or adaptability as a predictor for high school achievement makes sense in that high school students must adapt to the content, scheduling and transitioning between approximately seven content areas per day. Further, they must accommodate to several different teaching styles and personalities. From this perspective, it appears clear that flexibility or adaptability would influence high school achievement. As

with academic adjustment, persistence is related to task completion. Positive mood may relate in some way to interest in one's environment including academic subjects. One may speculate that a positive mood as opposed to negativity may enhance accessibility to internal cognitive resources. The literature on children and adolescents support the findings of a consistent relationship between adaptability or flexibility and academic achievement. Studies by Chess and Thomas (1977, 1984) found adaptability (flexibility) and approach to be most predictive of achievement levels in reading and arithmetic during elementary school. Adaptability (flexibility) was also found to be the best predictor of academic achievement for first, second and third graders (Pullis & Cadwell, 1982), adaptability was again found to predict reading, vocabulary and math for second through fifth graders.

As noted earlier, the temperament dimensions that emerged for high school achievement differed from the predictor variables for first semester college achievement. Low distractibility, rhythmicity of sleep and activity level during sleep were most predictive for freshman students. The research on the correlation between temperament and college achievement is nonexistent. However, the literature on elementary-aged students does support the correlation of low distractibility with academic performance. Studies

indicate that low distractibility is predictive for performance for math scores (Hegvik, 1984), criterion referenced tests, teacher assigned grades and standardized achievement tests (Lerner, Lerner & Zabski, 1985; Martin, Drew, Gaddis, & Moseley, 1988) for elementary-aged students. Despite the lack of research on the relation between temperament and college achievement, the findings of this study are important. The temperament dimension of rhythmicity of sleep appears to be an essential physiological factor for performance. The relationship between activity during sleep and academic performance is not clear. The correlation between these two variables indicates that academic performance increases with activity level during sleep. Without further research with this age group, the meaning of this relationship is purely speculative. One possibility is the limited amount of items on the DOTS-R (4) which tap activity level during sleep. Nonetheless, temperament was significant in predicting actual academic performance during the first semester of college.

The relationship of temperament to perceived academic adjustment and actual academic performance were examined. A behavioral profile of flexibility, attention, and persistence along with rhythmicity (daily habits) and moderate levels of motor activity were found to be the most significant temperament attributes assessing one's perception of adjustment to the academic demands of

college. Actual performance in high school was strongly related to a behavioral style that was flexible, persistent and positive in mood. Academic achievement in college was best predicted by low distractibility, rhythmicity of sleep and activity level during sleep. It is interesting that the temperament dimension of flexibility and persistence emerged as significant for actual academic performance in high school and for self-ratings of academic adjustment in college. However actual academic performance in college was more related to attention and regulation of sleep both of which are important physiological factors for optimum performance in any endeavor.

Perceived Social Support

The last analysis of the relationship of temperament to adjustment involved the subcomponent of adjustment, perceived social support from friends. As with academic achievement, no research exists investigating the relationship of temperament to perceived social support from friends in college. It was hypothesized that the temperament dimensions of activity level-general, positive mood, low distractibility, approach, flexibility and persistence would relate to one's perception of support from friends during this transition period in college. A freshman who is active, flexible to change, approaching, and positive in mood is more likely to attract peers into

a positive social relationship and that relationship is likely to be reciprocal. In addition, attentiveness and persistence as they apply to social interactions would also enhance perceived social support from friends. The results of the analyses indicated that temperament variables of positive mood and approach were predictive of perceived social support from friends in college during the transition period in the first semester. Although flexibility, persistence, and activity level in general did not emerge as predictive variables, it is important to note that these three variables were highly correlated to the temperament dimension of approach. Interestingly, rhythmicity of eating surfaced as a significant factor for perceived social support from friends in college. When rhythmicity of eating is perceived as internal self-regulation, a mechanism for meeting one's own needs, the relationship between perceived social support from friends is understandable. An individual that can provide for support for their individual needs is more likely to perceive support from others in time of need.

Female gender emerged as a predictor variable for perceived social support from friends. Although there is no research to support this finding in relation to temperament and perceived social support from friends, the results are not surprising.

It goes without saying that understanding the relationship of temperament to perceived social support

has important implications for college counselors and residence hall directors. The first semester freshman is away from home for the first time without close proximity of family. It can be stressful during that transition period and support from peers whether actual or perceived is crucial.

The Relationship of Attachment to Adjustment

The findings of the analyses on the relationship of attachment to adjustment were both significant and supportive of attachment theory. It was hypothesized that the student's perception of the quality of the early parent-child relationship would influence all areas of adjustment to college. Attachment was defined by two dimensions "care" and "low overprotection" and conceptualized as one's perception of the early parent relationship as warm, empathic and caring and allowing for independence in regard to exploration of the environment and problem-solving. The results of these analyses found that the attachment dimension of care was most predictive of academic adjustment, social adjustment, goal attainment/institutional attachment and perceived social support from friends. The data suggest that the perception of an early parent-child relationship as secure enhances self-confidence and exploration of new situations not only in early childhood but also into adulthood. It was only on the criterion variable personal/emotional

adjustment that both dimensions of attachment (care and low overprotection) emerged as significant predictors. Remembering that personal/emotional adjustment involved physical and psychological adjustment to the demands of college living, it appears logical that care and low overprotection would be significant. An individual who had the confidence in the accessibility and responsiveness of a parent/primary caretaker from early childhood is more likely to be emotionally well-adjusted in adolescence and adulthood during situations of stress and conflict (Bowlby 1969, 1982). The literature on attachment and psychological well-being supports the hypothesis formulated that the quality of parent attachment contributes to personal/emotional adjustment in college. The studies focusing on late adolescence found securely attached individuals to be more ego-resilient (Kobark & Sceery, 1988) and satisfied (Armsden & Greenberg, 1987) with themselves in college. The results of the relationship of attachment to personal/emotional adjustment suggest that care alone, as a component of attachment, does not account for physiological and emotional adaptation to change. But that low overprotection during early childhood development which strengthens and facilitates self-confidence, self-reliance and independence, is an essential component of attachment to enhance personal/emotional adjustment. Individuals who are confident and self-reliant are more

likely to attend to their physical needs when stressed (diet, sleep and exercise). These individuals are also more likely to explore the environment for resources to help with the psychological adjustment to new demands.

In the post hoc analysis on attachment and adjustment gender emerged as a significant predictor. Females perceived social support and goal attainment while males reported greater personal-emotional adjustment. These results were not surprising given that preliminary data analyses indicated a gender difference for females on the attachment subscale care and on the subscales perceived social support from friends and for males with personal-emotional adjustment. Research (Kenny, 1987) on attachment among first-year college students found similar differences. Females indicated they were more likely to seek out help from friends than did males. Males, on the other hand, reported that they were more likely to problem-solve on their own.

Overall, the implications for the relationship of attachment to adjustment are important for parents, teachers and college student personnel workers.

Limitations of this Study

Problems and limitations exist in any domain worth researching. The limitations are inherent in research and influenced by the variables under study, population sampled, sampling procedure, and instrumentation. The

most salient limitations will be discussed in this section.

Variables

Temperament presents difficulties in research in that the number and definitions of dimensions of temperament differ across research studies. The inconsistency of operational definitions for temperament attributes limits the generalization of temperament as a construct. One can only generalize the findings to the specific temperament attributes examined with a specific instrument. External confounding variables such as environment, parenting style, cognitive capability and physiological characteristics are often difficult to control and can cloud the interpretation of the data. Behavioral manifestation of temperament attributes vary across developmental stages and therefore make it difficult to categorize temperament according to the development stage.

Although the definition of attachment is more unified across disciplines, many uncontrolled external variables limit the generalization of the findings. It is not clear what influence child-rearing styles, parental attitudes and/or socioeconomic conditions might have on the early parent-child relationship. In the present study, it is not clear what the relationship is between perceived care and overprotection and actual parent-child interaction.

Temperament may have influenced these perceptions to a great extent.

Population Sample

The sample population used in this study could limit the generalization of the results in relation to race. The sample population was predominantly Caucasian with few minority group represented. The pronounced difficulty with the current sample is that it limits generalization to other young adults who are not attending college yet face a transition period of adjustment away from home, perhaps into the work force, armed services or into a marital partnership. Many of the adjustment components defined in this study are equally important in understanding the non-college young adult.

An advantage of the sample was its composition of freshman student from two distinct setting. One portion of the sample was from a large state university in a major metropolitan area while the other portion was from a small private college in a rural setting. Although differences were noted among demographic variables between schools, there was no difference in adjustment between schools.

Sampling Procedure

The sampling procedure was not completely randomized. Students were volunteers who were externally reinforced for their participation. The sampling procedure

compromises the interpretation and generalization of the results to other freshman students who did not volunteer. On-campus living in residence halls was a major criterion for participation in the study. This results in a selection factor that limits generalization of the findings to first semester freshman students who live off campus and first semester freshman who commute to college.

Instrumentation

All measures used for this study were self-report, paper and pencil measures that rely on the ability and willingness of the respondents to provide accurate reports on past and present behaviors. The major difficulty in assessing temperament, attachment and adjustment in this study is the issue of self-perception versus reality. Time of assessment is also critical factor. Students were assessed between six and nine weeks of the first semester of college. Because of the size of the sample and the logistics of compiling data, approximately a four week interval existed between the initiation and completion of data collection. It is difficult to determine the impact that time may have had in influencing student responses.

Direction for Future Research

In terms of theory development, it is clear that temperament and attachment are not simple phenomena, and

that there is a need for continuing research based on the assumption that both constructs are related and influential to development across the life-span.

Future research should address itself to establishing operationalized definitions of temperament dimensions across development stages. Unification of temperament dimensions increases the validity and the reliability of the impact of temperament. Research should also focus on identifying which antecedent variables influence the manifestation of temperament and attachment (i.e. parenting style, culture, cognitive functioning, etc.). Additional research also needs to identify other unknown variables that might account for adjustment in young adults.

While this study looked at first semester freshman students away from home for the first time, future research would be useful to examine the influence of temperament and attachment on college adjustment across time (freshmen - seniors). As it is important with all research endeavors, continued efforts to provide for a randomized sampling of young adults would best ensure generalization of the findings. Last, research might look at temperament in regard to selection of college (geographic location - rural vs. urban and size - small vs. large) and how school selection impacts adjustment.

Implications for Theory

This study sought to better understand the hypothesized relationship between temperament and attachment and the influence of both variables on adjustment in adulthood. The results of the analyses demonstrated that in this sample that there is a significant relationship between temperamental style and self-perceived quality of the early parent-child relationship as reported by the adult child. It was also found that temperament influences the adjustment of first semester freshmen students away from home for the first time. In addition, the self-perceived quality of the early parent-child relationship correlates significantly with adjustment to college.

Temperament and Attachment

The findings of this investigation support Dunn and Kendrick's, (1982) and Webster-Stratton and Eyberg (1982) conjecture that the theories of attachment and temperament cannot be isolated but must be viewed in how one theory influences the other during infancy and early childhood. Attachment theory needs to incorporate the construct of "goodness of fit" in relation to parent-infant interactions and its impact on child development.

Temperament and Adjustment

Adjustment theory as it relates to temperamental style needs to be more clearly defined and broadened as it applies across the life-span. Adjustment to school for children and adolescents based on behavioral style is difficult to interpret. For elementary and secondary educational level, achievement scores and teacher ratings are the primary determinants of the dependent variable adjustment. The definitions of adjustment for children and adolescents should parallel the definition of adjustment for young adults. That is social adjustment, and emotional adjustment in school are as important for young children and adolescents as they are for young adults.

Attachment and Adjustment

The theory of attachment was constructed on the basis of research with infants and young children. Adolescents as a population of study have now been added. In order to understand the implication of attachment across the developmental life span, attachment theory needs to expand into adulthood. Attachment theory needs to consider attachment patterns in adult social relationships, parenting and the implication of those patterns on adjustment.

Implications for Professional Practice

Parent Training

The implications of the relationship of temperament to attachment are critical when addressing parenting style and childrearing. We know from the extensive research by Chess and Thomas (1984) on children with difficult temperament, the impact of counseling parents to help reduce psychopathology among this temperament constellation. For optimal bonding or secure attachment to take place, it is essential that parents understand their infant's temperament style, the way the infant responds to the demands of the environment. Consultation with parents on parenting style and childrearing practices can only be accomplished by helping parents understand the importance of a "goodness of fit" between child temperament and parental expectations and demand. Parent guidance on structuring the environment given the child's temperament style is essential to maximize both attachment and adjustment.

Teacher Training

The literature documents the impact of temperament and attachment on school adjustment and psychosocial functioning. Educators of young children can better teach the child if they have an understanding of how the child interacts with and responds to the environment. Teaching techniques used for a child who is highly distractable,

approach oriented with low persistence will be quite different from the techniques used to teach a child who is rigid, persistent and withdrawn. It is essential for teachers to understand the importance of structuring the educational environment, demands and expectations to meet the child's temperament style. A good match between temperament and environment will enhance success and poor match will promote in frustration and failure for the child.

For college students, it is difficult to implement individualized teaching techniques and classroom modifications to meet the college students temperamental style, nor is it advocated here. At the college level, the environment can be more individualized in the provision of resources, student services and living accomodation. Individualization at that level could help the student to structure their own environment to maximize adjustment to the demands of college.

School Psychologist

The school psychologist is in a unique position to help facilitate adjustment in school and program appropriate interventions as they relate to temperament. This is true at both the elementary and secondary levels. Many of the behavioral problems of young children in school (calling out, out-of-seat behavior, off-task behaviors) are a manifestation of their temperamental

attributes. The school psychologist is in a unique position not only to assess the child's temperament style but consult with the teacher to help understand the educational implication of that particular behavioral style. School psychologists can be instrumental in fostering school adjustment across developmental stages. In high school, school psychologists along with guidance counselors can help the college bound student to select the college environment that would optimize adjustment given the individual behavioral style.

Summary

This research sought to clarify the relationship between attachment and temperament theory and its influence on adult adjustment. While the majority of research on theory and implications for attachment and temperament on adjustment have focused on young children and adolescents, this study attempted to examine the relationship of these two constructs on adjustment of young adults in college.

Using first semester freshman students, this research investigated the relationship between recollections of the quality of the early parent child relationship and temperament in adulthood, and the relationship of attachment and temperament to initial adjustment to college. The results showed that in this sample of young adults the temperament dimensions of positive mood, low

distractibility and rhythmicity of eating were most predictive of one's perception of a caring parent. Positive mood, flexibility, rhythmicity of eating and persistence were most predictive of a young adults's perception of a parent that encouraged independence during childhood development. Post hoc analysis indicated that the variable school was significant in influencing self-perceptions of more care and nurturance in the parent-child relationship. While school appears to be an environmental variable, independent of temperament attributes, the fact is that several dimensions were correlated with school. Students with particular temperament attributes are drawn to the school thereby making school a selection factor.

Analysis of the relationship of temperament to adjustment in college found that temperament was a significant predictor for social, emotional, and academic adjustment as well as for goal attainment and perceived social support from friends. Positive mood, approach, flexibility and persistence were found to be predictive of social adjustment. School also emerged as a predictive variable for social adjustment in the post hoc analysis but contributed a small amount to the total variance accounted for by temperament. For personal/emotional adjustment, the temperament clusters of low distractibility, rhythmicity of eating and low level of activity during sleep were significantly related to

physical and psychological adaptation to college demands. The temperament profile of approach, flexibility and persistence were significantly correlated to goal commitment in college. For adjustment to the academic demands of college, low distractibility, flexibility, persistence, activity level in general, and rhythmicity of daily habits were found to be significant. However, the temperament dimensions of flexibility, mood and persistence were correlated with high school achievement while low distractibility, rhythmicity of sleep and activity level of sleep were most predictive of academic achievement for the first semester of freshman year. The results found that activity level-general, positive mood, low distractibility, approach, flexibility and persistence were predictive of perceived social support from friends.

The results of the research identified care as the most predictive subcomponent of attachment to adjustment. Care correlated significantly with academic and social adjustment, goal attainment and perceived social support from friends. Both care and low overprotection emerged as significant predictors for personal/emotional adjustment. Gender was correlated with adjustment to college.

The results of this study are consistent with earlier work with children and adolescents and adds support to the theory that temperament and attachment are significant variables which influence the adaptation of a major life change for young adults.

Appendix A

Characteristics of Sample

Table A-1

Characteristics of Total Sample

			N	%
(1)	Sex	Female	161	62
		Male	99	38
(2)	Age	16	1	
		17	32	12
		18	210	81
		19	15	6
		20	3	1
(3)	Race	White	210	81
		Black	32	12
		Other	19	7
(4)	Miles From Home	0-50	76	29
		50-100	53	20
		100-250	64	25
		over 250	68	26
(5)	Prior Friends On Campus	No	59	23
		Yes	201	77
(6)	New Friends On Campus	No	3	1
		Yes	257	99
(7)	Relatives Living In Area	No	186	71
		Yes	75	29

Table A-1 (cont.)

		N	%
(8)	Home On Weekends Every Weekend	20	8
	Every Other Weekend	31	12
	Holidays	155	59
	Other	55	21

Table A-2

Characteristics of Sample by School

		University of Maryland		Mount Saint Mary's	
		N	%	N	%
Sex	Female	82	71	79	55
	Male	34	29	65	45
Age	Mean	17.89		18.00	
	SD	.52		.46	
Race	White	83	72	127	88
	Black	19	17	13	9
	Other	13	11	4	2
Miles From Home					
	0-50	58	50	18	12
	50-100	13	12	40	28
	100-250	18	16	46	32
	over 250	27	23	41	28
Prior Friends on Campus					
	Yes	97	84	104	71
	No	18	16	41	28
New Friends on Campus					
	Yes	115	99	142	99
	No	1	1	2	1

Table A-2 (cont.)

	University of Maryland		Mount Saint Mary's	
	N	%	N	%
Relatives in Area				
Yes	53	46	22	15
No	63	54	123	85
Home on Weekends				
Every	17	15	3	2
Every Other	25	22	6	4
Holidays	38	33	117	81
Other	36	31	19	13

Table A-3

Academic Characteristics of Sample

	Measure	Range of Scores	Mean	SD
Total Sample	SAT	630-1500	1008	160
	1st Sem. GPA	.33-4.00	2.56	4.24
University of Maryland	HSGPA	1.93-4.0	3.05	.51
	SAT	730-1500	1081	161
	1st Sem. GPA		2.72	.87
Mount Saint Mary's	SAT	630-1100	936	122
	1st Sem. GPA	.500-3.75	2.41	.67

Table A-4

Gender Differences on Demographic and Criterion Variables

	Males		Females		
	N = 99		N = 161		
Variables	Mean	SD	Mean	SD	t
Demographic Variables					
Age	18.06	.55	17.88	.44	-2.74**
First Semester GPA	2.40	.75	2.65	.80	2.22*
Criterion Variables					
Adjustment Components					
Perceived Social Support	14.25	4.70	16.38	4.46	3.88***
Personal-Emotional Adjustment	5.78	1.24	5.41	1.34	-2.19*
Goal Committment/Institutional Attachment	6.52	1.32	6.95	1.31	2.53*

* $p < .05$

** $p < .01$

*** $p < .001$

Table A-5

School Differences on Demographic, Predictor Variables

	University of Maryland N = 116		Mount Saint Mary's N = 145		
Variables	Mean	SD	Mean	SD	t
Demographic Variables					
Friends from High School	8.22	8.31	4.74	7.55	2.99**
SAT Scores	1080.67	160.09	935.58	122.24	7.37***
First Semester GPA	2.72	.87	2.41	.67	2.91**
Predictor Variables					
Temperament Dimension					
Approach/ Withdrawal	20.45	3.96	19.44	3.62	2.12*
Rhythmicity - Daily Habits	11.08	2.94	11.86	2.74	-2.19*
Distractibility	11.54	2.80	10.53	2.81	2.91**
Attachment Component					
Care	2.15	.71	2.32	.62	-2.06*

* $p < .05$

** $p < .01$

*** $p < .001$

APPENDIX B

Correspondence to Freshman Students

B-1 Participation Letter to Freshman Students at the University of Maryland

B-2 Participation Letter to Freshman Students at Mount Saint Mary's College

B-3 First Follow-up Letter to Freshman Students at the University of Maryland

B-4 First Follow-up Letter to Freshman Students at Mount Saint Mary's College

B-5 Second Follow-up Letter to Freshman Students at the University of Maryland

B-6 Second Follow-up Letter to Freshman Students at Mount Saint Mary's College

THE UNIVERSITY OF MARYLAND
COLLEGE OF EDUCATION
College Park, Maryland 20742

Counseling and Personnel Services
(301) 454-2026

September 23, 1988

Dear Freshman:

Welcome to the University of Maryland. As a new student to the University of Maryland you will have many opportunities to be involved in new and exciting activities. One such opportunity is to participate in research projects. College freshmen have an honored and valuable role in research.

As a doctoral candidate at the University of Maryland, I would like to extend to you an invitation to participate in a research project investigating social relationships and college adjustment of young adults. Participation in this research would require approximately thirty minutes of your time to complete four surveys. All of the information collected in the study will be kept confidential. Results will be reported as group data, so that no individual may be identified.

I will be accepting volunteers from Cumberland, Ellicott and Denton communities on six different dates. Please select a date or location that will be most convenient for you. The dates and locations are liste below. Remember, you need only choose one session.

PLACE	DATE	TIME
Centerville Recreation Room	October 25th or 26th	7:00 p.m. - 8:30 p.m.
Ellicott Recreation Room	November 1st or 2nd	6:00 p.m. - 8:00 p.m.
Denton Recreation Room	November 7th or 9th	7:00 p.m. - 8:00 p.m.

As a token of appreciation for your time and effort, I will have refreshments available and discount coupons for Armands Pizzeria. Additionally, when you turn in the completed surveys, your name will be entered into a drawing for two free movie tickets and dinner for two at Armands Pizzeria in College Park or Washington, D.C.

You will receive two reminders of the locations, dates and times of the study in the mail over the next few weeks. Also enclosed with the letter will be a post card to be returned to me, through campus mail, requesting that the final results of the study be sent to you. A few days prior to the meeting, signs will be posted in your residence hall with the dates and times of the study. I would like to thank you in advance for your cooperation. I look forward to meeting you personally in the very near future.

Thank you,

Carol M. Miller
Doctoral Candidate
CAPS Department

P.S. MARK YOUR CALENDARS! YOUR PARTICIPATION IS IMPORTANT!

THE UNIVERSITY OF MARYLAND
COLLEGE OF EDUCATION
College Park, Maryland 20742

Counseling and Personnel Services
(301) 454-2026

September 24, 1988

Dear Freshman:

Welcome to Mount Saint Mary's! As a new student at the Mount you will have many opportunities to be involved in new and exciting activities. One such opportunity is to participate in research projects. College freshmen have an honored and valuable role in research.

As a doctoral candidate at the University of Maryland, I would like to extend to you an invitation to participate in a reserach project investigating social relationships and college adjustment of young adults. Participation in this research would require approxiately thirty minutes of your time to complete four surveys. All of the information colelcted in the study will be kept confidential. Results will be reported as group data, so that no individual may be identified.

I will be accepting volunteers on October 31st from 7:00 p.m. to 8:30 p.m. at Mack Lounge, Pangborn Lounge and Sheridan Lounge. As a token of appreciation for your time and effort, I will have refreshments available. Additionally, when you turn in the completed surveys, your name will be entered into a drawing for lunch for two at the Carriage House Restaurant.

You will receive two reminders of the locations, date and time of the study in the mail over the next few weeks. Also enclosed with the letter will be a post card to be returned to me, through campus mail, requesting that final results of the study be sent to you. A few days prior to the meeting, signs will be posted in your residence hall with the date and time of the study. I would like to thank you in advance for your cooperation. I look forward to meeting you personally in the very near future.

Thank you,

Carol M. Miller

Carol M. Miller
Doctoral Candidate
CAPS Department

P.S. MARK YOUR CALENDARS: OCTOBER 31ST!
YOUR PARTICIPATION IS IMPORTANT!

Table B-3

****

MARK YOUR CALENDARS

FRESHMEN ADJUSTMENT STUDY

COMING TO YOUR RESIDENCE HALL SOON!

** LISTED BELOW ARE SIX DIFFERENT TIMES - CHOOSE ONLY ONE DATE **

CUMBERLAND COMMUNITY * CENTERVILLE RECREATION ROOM

OCTOBER 25TH OR OCTOBER 26TH * 7:00PM - 8:30PM

ELLICOTT COMMUNITY * ELLICOTT RECREATION ROOM

NOVEMBER 1ST OR NOVEMBER 2ND * 6:00PM - 8:00PM

DENTON COMMUNITY * DENTON RECREATION ROOM

NOVEMBER 7TH OR NOVEMBER 9TH * 7:00PM - 8:30PM

IMPORTANT

--IT TAKES ONLY 30 MINUTES TO COMPLETE THE SURVEYS!!!!!!!

--SNACKS AVAILABLE

--OPPORTUNITY TO MAKE VALUABLE CONTRIBUTION TO RESEARCH

--YOU WILL GET DISCOUNT COUPONS FOR ARMAND'S PIZZA AND BE ELIGIBLE TO WIN FREE DINNER AND MOVIE TICKETS FOR TWO

CHOOSE ONE DATE THAT IS MOST CONVENIENT TO YOUR SCHEDULE

****

Table B-4

****

MARK YOUR CALENDARS

FRESHMEN ADJUSTMENT STUDY

COMING TO YOUR RESIDENCE HALL SOON!

OCTOBER 31ST

7:00PM - 8:30PM

SHERIDEN LOUNGE

PANGBORN LOUNGE

MACK LOUNGE

IMPORTANT

--IT TAKES ONLY 30 MINUTES TO COMPLETE THE SURVEYS!!!!!!!!

--SNACKS AVAILABLE

--OPPORTUNITY TO MAKE VALUABLE CONTRIBUTION TO RESEARCH

--YOU WILL BE ELIGIBLE TO WIN FREE LUNCH FOR TWO AT CARRIAGE HOUSE

****

Table B-5

PLAN TO BE THERE

FRESHMEN ADJUSTMENT STUDY

CENTERVILLE RECREATION ROOM

OCTOBER 25TH OR OCTOBER 26TH

*** 7:00PM - 8:30PM ***

*****

ELLICOTT RECREATION ROOM

NOVEMBER 1ST OR NOVEMBER 2ND

*** 6:00PM - 8:00PM ***

*****

DENTON RECREATION ROOM

NOVEMBER 7TH OR NOVEMBER 9TH

*** 7:00PM - 8:30PM ***

IMPORTANT

--CHOOSE ONLY **ONE** DATE THAT IS **MOST** CONVENIENT TO YOUR SCHEDULE

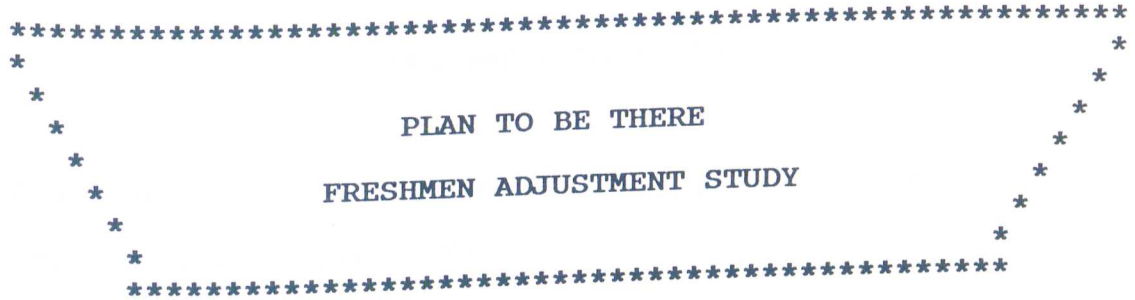
--YOU WILL GET **DISCOUNT COUPONS FOR ARMAND'S PIZZA** AND BE ELIGIBLE TO **WIN FREE DINNER AND MOVIE TICKETS FOR TWO**

--OPPORTUNITY TO MAKE VALUABLE CONTRIBUTION TO RESEARCH

--SNACKS AVAILABLE

IT TAKES **ONLY 30** MINUTES OF YOUR TIME

Table B-6



OCTOBER 31ST

* 7:00PM - 8:30PM *

*

SHERIDAN LOUNGE

*

PANGBORN LOUNGE

*

MAC LOUNGE

*

IMPORTANT

--YOU WILL BE ELIGIBLE TO WIN FREE LUNCH FOR TWO AT THE CARRIAGE HOUSE

--OPPORTUNITY TO MAKE VALUABLE CONTRIBUTION TO RESEARCH

--SNACKS AVAILABLE

IT TAKES ONLY 30 MINUTES OF YOUR TIME

APPENDIX C

Student Data Packet

INSTRUCTIONS

THANK YOU FOR YOUR COOPERATION

Your packet includes an INFORMED CONSENT FORM, a RELEASE FORM, and a BOOKLET containing four brief measures.

PLEASE read the INFORMED CONSENT FORM and RELEASE FORM carefully before signing. Also read the BOOKLET carefully making sure that you understand the instructions for each measure. If you have any questions during the completion of this research packet, PLEASE ask the researcher or research assistant and they will be glad to answer any of your questions.

If you are interested in receiving a copy of the results of this study please complete the bottom portion of the instruction sheet.

When you are finished, PLEASE put the signed INFORMED CONSENT FORM and the signed RELEASE FORM along with your request for the results of the study in the envelope. Hand in the BOOKLET and the envelope to the researcher or research assistant.

REMEMBER ALL INFORMATION IS HELD IN STRICT CONFIDENCE

RESULTS OF THE STUDY ARE REPORTED AS GROUP DATA

NO INDIVIDUAL IS IDENTIFIED

I am interested in receiving a copy of the results of this study. Please mail them to me.

Name _____

Street _____

City _____ State _____

Zip Code _____

Informed Consent Form

The study in which you are about to participate asks you to complete several scales which measure your adjustment to college, current friend and family relationships and personal characteristics. There are two short information forms and four scales to complete. It is estimated that approximately thirty minutes will be required to complete these measures.

All of the information collected in this study will be kept confidential. All results will be reported as group data, so that no individual may be identified. You have the right to withdraw from this study at any time.

Thank you for your participation.

Carol Miller, M. A.

Consent Agreement

1. I have freely volunteered to participate in this experiment.
2. I have been informed in advance of my tasks as a volunteer in in this study and the procedure to be followed.
3. I have been given the opportunity to ask questions, and have had my questions answered to my satisfaction.
4. I am aware that I have the right to withdraw consent and discontinue participation at any time, without prejudice.
5. I understand that any information I provide will be held in strict confidence reported as group data but that my responses will undergo statistical analyses.
6. My signature indicates that I understand the conditions of this research study, prior to participation.

Signature _____ Date _____

Print Name _____

Release Form

I _____ , give permission to the Mount St. Mary's Records
PRINT NAME
Office to release my Scholastic Aptitude Test (SAT) scores, my high school grade point average and my first semester grade point average to Carol Miller. I understand that this information will be used only for this study and will be kept confidential.

_____ Signature

_____ Social Security Number Date _____

Release Form

I _____ , give permission to the Mount St. Mary's Records
PRINT NAME
Office to release my Scholastic Aptitude Test (SAT) scores, my high school grade point average and my first semester grade point average to Carol Miller. I understand that this information will be used only for this study and will be kept confidential.

_____ Signature

_____ Social Security Number Date _____

Information Sheet

1. Date of Birth: _____ _____ _____ Age: _____
   month day year

2. Sex: (circle one) F M

3. Social Security Number : _____ – – _____

4. Race: _____

5. Dorm: _____ Year: _____

6. About how many miles are you from home?
   - ☐ 0–50
   - ☐ 50–100
   - ☐ 100–250
   - ☐ over 250

7. Do you have friends on campus that you knew before you came to school (e.g., childhood friends, friends from high school?

   ☐ yes ☐ no If yes, how many? _____

8. Have you begun to make new friends since arriving at college?

   ☐ yes ☐ no

9. Do you have relatives living in the immediate area?

   ☐ yes ☐ no If yes, how many? _____

   What is the redlationship of each to you? _____ _____ _____

   _____ _____ _____ _____ _____

10. Do you go home on weekends?

    ☐ every weekend ☐ every other ☐ holidays ☐ other

11. How long does it take you to get home by car? Hours _____ Minutes _____

12. Where do you live? State _____ City _____

HOW TO ANSWER: On the following pages are some statements about how people like you may behave. Some of the statements may be true of your own behavior and others may not apply to you. For each statement we would like you to indicate if the statement is usually true of you, is more true than false of you, is more false than true of you, or is usually false of you. There are no "right" or "wrong" answers because all people behave in different ways. All you have to do is answer what is true for you.

On the line to the left of each statement write a 1 if the statement is usually false for you, write a 2 if the statement is more false than true for you, write a 3 if the statement is more true than false for you, or write a 4 if the statement is usually true for you.

THANK YOU FOR YOUR COOPERATION

1 = usually FALSE
2 = more FALSE than true
3 = more TRUE than false
4 = usually TRUE

1.____ It takes me a long time to get used to a new thing in the home.
2.____ I can't stay still for long.
3.____ I laugh and smile at a lot of things.
4.____ I wake up at different times.
5.____ Once I am involved in a task, nothing can distract me from it.
6.____ I persist at a task until it's finished.
7.____ I move around a lot.
8.____ I can make myself at home anywhere.
9.____ I can always be distracted by something else, no matter what I may be doing.
10.____ I stay with an activity for a long time.
11.____ If I have to stay in one place for a long time, I get very restless.
12.____ I usually move towards new objects shown to me.
13.____ It takes me a long time to adjust to new schedules.
14.____ I do not laugh or smile at many things.
15.____ If I am doing one thing, something else occurring won't get me
16.____ I eat about the same amount for dinner whether I am home, visiting someone, or traveling.
17.____ My first reaction is to reject something new or unfamiliar to me.
18.____ Changes in plans make me restless.
19.____ I often stay still for long periods of time.
20.____ Things going on around me can not take me away from what I am doing.
21.____ I take a nap, rest, or break at the same times every day.
22.____ Once I take something up, I stay with it.
23.____ Even when I am supposed to be still, I get very fidgety after a few minutes.
24.____ I am hard to distract.
25.____ I usually get the same amount of sleep each night.
26.____ On meeting a new person I tend to move towards him or her.
27.____ I get hungry about the same time each day.
28.____ I smile often.
29.____ I never seem to stop moving.
30.____ It takes me no time at all to get used to new people.
31.____ I usually eat the same amount each day.

PLEASE GO ON TO NEXT PAGE

1 = usually FALSE
2 = more FALSE than true
3 = more TRUE than false
4 = usually true

32.____ I move a great deal in my sleep.
33.____ I seem to get sleepy just about the same time every night.
34.____ I do not find that I laugh often.
35.____ I move towards new situations.
36.____ When I am away from home I still wake up at the same time each morning.
37.____ I eat about the same amount at breakfast from day to day.
38.____ I move a lot in bed.
39.____ I feel full of pep and energy at the same time each day.
40.____ I have bowel movements at about the same time each day.
41.____ No matter when I go to sleep, I wake up at the same time the next morning.
42.____ In the morning, I am still in the same place as I was when I fell asleep.
43.____ I eat about the same amount at supper from day to day.
44.____ When things are out of place, it takes me a long time to get used to it.
45.____ I wake up at the same time on weekends and holidays as on other days of the week.
46.____ I don't move around much at all in my sleep.
47.____ My appetite seems to stay the same day after day.
48.____ My mood is generally cheerful.
49.____ I resist changes in routine.
50.____ I laugh several times a day.
51.____ My first response to anything new is to move my head toward it.
52.____ Generally I am happy.
53.____ The number of times I have a bowel movement on any day varies from day to day.
54.____ I never seem to be in the same place for long.

PLEASE TURN TO NEXT PAGE

This questionnaire lists various attitudes and behaviors of parents. As you remember your Mother/Father in your first 16 years would you please write the letter that best applies to you on the line to the left of the statement.

A = Very like
B = Moderately like
C = Moderately unlike
D = Very unlike

1.____ Spoke to me with a warm and friendly voice.
2.____ Did not help me as much as I needed.
3.____ Let me do those things I liked doing.
4.____ Seemed emotionally cold to me.
5.____ Appeared to understand my problems and worries.
6.____ Was affectionate to me.
7.____ Liked me to make my own decisions.
8.____ Did not want me to grow up.
9.____ Tried to control everything.
10.____ Invaded my privacy.
11.____ Enjoyed talking things over with me
12.____ Frequently smiled at me.
13.____ Tended to baby me.
14.____ Did not seem to understand what I needed or wanted.
15.____ Let me decide things for myself.
16.____ Made me feel I wasn't wanted.
17.____ Could make me feel better when I was upset
18.____ Did not talk with me very much.
19.____ Tried to make me dependent on her/him.
20.____ Felt I could not look after my self unless she/he was around.
21.____ Gave me as much freedom as I wanted.
22.____ Let me go out as often as I wanted.
23.____ Was overprotective of me.
24.____ Did not praise me.
25 ____ Let me dress in any way I pleased.

PLEASE TURN TO NEXT PAGE

Directions: The statements which follow refer to feelings and experiences which occur to most people at one time or another in their relationships with FRIENDS. For each statement there are three possible answers: Yes, No, Don't Know. Please write the answser which best applies to you on the line to the left of the statement.

Remember Y = Yes, N = No, and DK = Don't Know

1.____ My friends give me the moral support I need.
2.____ Most other people are closer to their friends than I am.
3.____ My friends enjoy hearing about what I think.
4.____ Certain friends come to me when they have problems or need advice.
5.____ I rely on my friends for emotional support.
6.____ If I felt that one or more of my friends were upset with me, I'd just keep it to myself.
7.____ I feel that I'm on the fringe in my circle of friends.
8.____ There is a friend I could go to if I were just feeling down, without feeling funny about it later.
9.____ My friends and I are very open about what we think about things.
10.____ My friends are sensitive to my personal needs.
11.____ My friends come to me for emotional support.
12.____ My friends are good at helping me solve problems.
13.____ I have a deep sharing relationship with a number of people.
14.____ My friends get good ideas about how to do things or make things from me.
15.____ When I confide in friends, it makes me feel uncomfortable.
16.____ My friends seek me out for companionship.
17.____ I think that my friends feel that I'm good at helping them solve problems.
18.____ I don't have a relationship with a friend that is as intimate as people's relationships with friends.
19.____ I've recently gotten a good idea about how to do something from a friend.
20.____ I wish my friends were much different.

PLEASE GO TO THE NEXT PAGE

Below are several statements which will apply to you in greater or lesser degree. At the top of each page is a scale ranging from 1 to 9, with 1 indicating that the statement "Applies very closely to me" while 9 indicates that it "Doesn't apply to me at all". On the line to the left of each statement write the number in the scale which best represents your judgment concerning how closely the statement applies to you AT THE PRESENT TIME, i.e., WITHIN THE LAST FEW DAYS. Since your judgement may vary considerably from item to item, you should feel free to use any of the numbers in the scale.

As an example, if you felt that a statement applied very closely to you, you could write the "9" on the line to the left of the statement; if less closely, "7"; if not very closely, "3"; if not at all, "1"; etc. Please remember that you can use any number at any point in each scale, but NO MORE THAN ONE number in each scale.

9 8 7 6 5 4 3 2 1

Applies very closely to me — Doesn't apply to me at all

Please be sure to complete the entire questionnaire Be just as frank and honest as possible; your answers will be accorded strict professional confidentiality.

1.____ I feel that I fit in well as part of my college environment.
2.____ I have been feeling tense or nervous lately.
3.____ I have been keeping up to date on my academic work.
4.____ I am meeting as many people, and making as many friends, as I would like at college.
5.____ I know why I'm in college and what I want out of it.
6.____ I am finding academic work at college difficult.
7.____ Lately I have been feeling blue and moody a lot.
8.____ I am very involved with social activities in college.
9.____ I am adjusting well to college.
10.____ I have not been functioning well during examinations.
11.____ I have felt tired much of the time lately.
12.____ Being on my own, taking responsibility for myself, has not been easy
13.____ I am satisfied with the level at which I am performing academically.
14.____ I have had informal, personal contacts with my college professors.
15.____ I am pleased now about my decision to go to college.
16.____ I am pleased now about my decision to attend the this college in particular.
17.____ I'm not working as hard as I should at my coursework.
18.____ I have several close social ties at college.
19.____ My academic goals and purposes are well-defined.
20.____ I haven't been able to control my emotions very well lately.
21.____ I'm not really smart enough for the academic work I am expected to be doing now.
22.____ Lonesomeness for home is a source of difficulty for me now.
23.____ Getting a college degree is very important to me.
24.____ My appetite has been good lately.
25. ____ I haven't been very efficient in the use of study time lately.
26. ____ I enjoy living in a college dormitory.
27. ____ I enjoy writing papers for courses.
28. ____ I have been having a lot of headaches lately.
29. ____ I really haven't had much motivation for studying lately.
30. ____ I am satisfied with the extracurricular activities available at college.
31. ____ I've given a lot of thought lately to whether I should ask for help from the counseling center, or from a psychotherapist outside of college.

PLEASE TURN TO NEXT PAGE

9 8 7 6 5 4 3 2 1
Applies very closely to me Doesn't apply to me at all

32.____ Lately I have been having doubts regarding the value of a college education.
33.____ I am getting along very well with my roomate(s) at the college (Please omit if you do not have a roommate).
34.____ I wish I were at another college or university rather than this one.
35.____ I've put on (or lost) too much weight lately.
36.____ I am satisfied with the number and variety of courses available here at college.
37.____ I feel that I have enough social skills to get along well in the college setting.
38.____ I have been getting angry too easily lately.
39.____ Recently I have had trouble concentrating when I try to study.
40.____ I haven't been sleeping very well.
41.____ I'm not doing well enough academically for the amount of work I put in.
42.____ I am having difficulty feeling at ease with other people at college.
43.____ I am satisfied with the quality or the caliber of courses available at this college.
44.____ I am attending classes regularly.
45.____ Sometimes my thinking gets muddled up too easily.
46.____ I am satisfied with the extent to which I am participating in social activities at college.
47.____ I expect to stay at this college for a bachelor's degree.
48.____ I haven't been mixing too well with the opposite sex lately.
49.____ I worry a lot about my college expenses.
50.____ I am enjoying my academic work at college.
51.____ I have been feeling lonely a lot at college.
52.____ I am having a lot of trouble getting started on homework assignments.
53.____ I feel I have good control over my life situation at college.
54.____ I am satisfied with my program of courses for this semester.
55.____ I have been feeling in good health lately.
56.____ I feel I am very different from other students at college, in ways I don't like.
57.____ On balance, I would rather be home than here.
58.____ Most of the things I am interested in are not related to any of my coursework at college.
59.____ Lately I have been giving a lot of thought to transferring to another college.
60.____ Lately I have been giving a lot of thought to dropping out of college altogether and for good.
61.____ I find myself giving considerable thought to taking time off from college and finishing later.
62.____ I am very satisfied with the professors I have now in my courses.
63.____ I have some good friends or acquaintances at the college with whom I can talk about any problems I may have.
64.____ I am experiencing a lot of difficulty coping with the stresses imposed upon me in college.
65.____ I am quite satisfied with my social life at college.
66.____ I'm quite satisfied with my academic situation at college.
67.____ I feel confident that I will be able to deal in a satisfactory satisfactory manner with future challenges here at college.

THANK YOU FOR YOUR TIME

Appendix D

Pearson Correlation Coefficient of Scales on the

Parental Bonding Instrument

Revised Dimensions of Temperament Survey

Perceived Social Support

Student Adaptation to College Questionnaire

Table D-1 - Abbreviation Key to Predictor and Criterion Subscales

Table D-2 - All Subjects

Table D-3 - Females

Table D-4 - Males

Table D-1

Abbreviation Key for Predictor and Criterion Variables

Revised Dimensions of Temperament Survey

ALG - Activity Level-General

ALS - Activity Level-Sleep

AW - Approach/Withdrawal

FR - Flexibility/Rigidity

MD - Mood

RS - Rhythmicity-Sleep

RE - Rhythmicity-Eating

RDH - Rhythmicity-Daily Habits

DIS - Distractibility

PER - Persistence

Table D-1 (cont.)

Student Adaptation to College Questionnaire

ATT - Goal Commitment/Institutional Attachment

PE - Personal/Emotional Adjustment

SOC - Social Adjustment

AC - Academic Adjustment

Parental Bonding Instrument

CARE - Care

OP - Overprotection

Perceived Social Support Scale

PSS -Perceived Social Support from Friends

Table D-2

Pearson Correlation Coefficient of Scales

Parental Bonding Instrument, Dimensions of Temperament Survey-Revised,

Perceived Social Support and Student Adaptation to College Questionnaire

All Subjects

	ALG	ALS	AW	FR	MD	RS	RE	RDH	DIS	PER	ATT	PE	SOC	AC	CARE	OP	PSS
ALG	-																
ALS	.32**	-															
AW	.29**	.08	-														
FR	-.08	-.11*	.28	-													
MD	.14**	.06	.41**	.20**	-												
RS	-.29**	-.18**	-.09	-.11*	-.08	-											
RE	-.08	-.17**	.19	.02	.15**	.40**	-										
RDH	.00	-.11**	.12*	-.12*	.05	.42**	.48**	-									
DIS	-.28**	-.23**	.09	.09	-.03	.24**	.18**	.14*	-								
PER	-.19**	-.11*	.13*	.00	.04	.24**	.13*	.04	.56**	-							
ATT	-.00	-.09	.34**	.35**	.41**	-.04	.17**	.09	.11*	.16**	-						
PE	-.14**	-.24**	.09	.35**	.20**	.04	.28**	.11*	.22**	.12*	.44**	-					
SOC	.09	-.06	.45**	.36**	.44**	-.06	.21**	.07	.14**	.19**	.83**	.43**	-				
AC	-.25**	-.15**	.12*	.19**	.09	.16**	.20**	.16**	.38**	.28**	.41**	.50**	.35**	-			
CARE	-.00	-.16**	.11*	.11*	.36***	.06	.25***	.10*	.19***	.17**	.30***	.38***	.32***	.30***	-		
OP	.10*	.17**	-.11*	-.24***	-.25**	-.05	-.22***	-.10*	-.15	-.15**	-.25	-.35***	-.24	-.22	-.56***	-	
PSS	.08	-.08	.34***	.18**	.44	.21	.20***	.05	.07	.15**	.40***	.15**	.51***	.07	.34***	-.25***	-

*p <.05

**p <.01

***p <.001

Table D-3

Pearson Correlation Coefficient of Scales

Parental Bonding Instrument, Dimensions of Temperament Survey-Revised,

Perceived Social Support and Student Adaptation to College Questionnaire

Females

	ALG	ALS	AW	FR	MD	RS	RE	RDH	DIS	PER	ATT	PE	SOC	AC	CARE	OP	PSS
ALG	-																
ALS	.33***	-															
AW	.29***	.11	-														
FR	.00	-.03	.34***	-													
MD	.14*	-.02	.38***	.17**	-												
RS	-.28***	-.19**	-.11	-.16*	-.07	-											
RE	-.17*	-.25***	.11	.01	.13*	.43***	-										
RDH	-.05	-.15*	.07	-.08	.03	.44***	.52***	-									
DIS	-.20**	-.28**	.12	.04	.02	.16*	.24***	.14*	-								
PER	-.17	-.10	.18**	-.04	.07	.24***	.15*	.11	.57***	-							
ATT	.00	-.05	.35***	.37***	.37**	-.06	.22**	.12	.09	.13*	-						
PE	-.17**	-.27	.11**	.35***	.25***	.06	.32***	.18*	.29***	.23***	.49	-					
SOC	.07	-.02	.45***	.36***	.43***	-.08	.17*	.05	.16*	.14*	.85***	.43***	-				
AC	-.27***	-.13	.16*	.12	.08	.10	.26***	.13*	.40**	.38***	.43***	.59***	.37***	-			
CARE	-.03	-.13	.09	.07	.41***	.06	.27**	.16*	.20**	.15*	.28***	.39***	.28***	.33***	-		
OP	.15*	.18**	-.05	-.19**	-.30**	-.04	-.20**	-.12	-.15*	-.24***	-.27***	-.43***	-.21**	-.28***	-.61***	-	
PSS	.03	-.05	.28***	.17*	.42***	.01	.12	.06	.11	.14*	.41***	.22**	.49***	.10	.36***	-.19***	-

*$p < .05$

**$p < .01$

***$p < .001$

Table D-4

Pearson Correlation Coefficient of Scales

Parental Bonding Instrument, Dimensions of Temperament Survey-Revised,

Perceived Social Support and Student Adaptation to College Questionnaire

Males

	ALG	ALS	AW	FR	MD	RS	RE	RDH	DIS	PER	ATT	PE	SOC	AC	CARE	OP	PSS
ALG	-																
ALS	.29**	-															
AW	.28**	.05	-														
FR	-.22**	-.21*	.19*	-													
MD	.16	-.10	.45***	.22*	-												
RS	-.29**	-.13	-.07	-.06	-.13	-											
RE	.09	-.04	.33***	.03	.20*	.36***	-										
RDH	.06	-.08	.18*	-.15	.08	.42***	.44***	-									
DIS	-.44***	-.28**	.03	.16	-.12	.37***	.08	.16	-								
PER	-.21*	-.12	.06	.04	.00	.25**	.10	-.02	.53***	-							
ATT	.02	-.09	.32***	.26**	.45***	-.05	.09	.12	.10	.21*	-						
PE	-.08	-.22**	.11	.37***	.17*	.02	.21*	.05	.11	-.07	.39***	-					
SOC	.14	-.08	.46***	.32***	.44***	-.05	.28**	.15	.10	.24**	.80***	.46***	-				
AC	-.22*	-.17	.05	.26**	.06	.27**	.09	.23**	.34***	.16	.33***	.39***	.28**	-			
CARE	.05	-.22	.16	.20*	.29**	.05	.20*	.00	.18	.21*	.37***	.37***	.40***	.26**	-		
OP	-.02	.14	-.24**	-.34***	-.16	-.08	-.26	-.09	-.15	.00	-.23**	-.15	-.30***	-.08	.43***	-	
PSS	.18*	-.06	.41***	.15	.45***	.02	.36***	.07	.00	.18*	.34***	.16	.54***	-.03	.37***	-.26	-

*p <.05

**p <.01

***p <.001

Appendix E

Items and Item Means on Subscales

E-1 Parental Bonding Instrument

E-2 Revised Dimensions of Temperament Scale

Activity Level - General

Activity Level - Sleep

Approach/Withdrawal

Flexibility/Rigidity

Mood

Rhythmicity - Sleep

Rhythmicity - Eating

Rhythmicity - Daily Habits

Distractability

Persistence

E-3 Student Adaptation to College Questionnaire

Academic Adjustment

Social Adjustment

Personal/Emotional Adjustment

Attachment/Goal Committment

E-4 Perceived Social Support

Friends

Table E-1

Items on the Parental Bonding Subscales

Care Scale

Item Number	Item Content	Item Mean
1	Spoke to me with a warm and friendly voice	2.44
2	Did not help me as much as I needed	2.15
4	Seemed emotionally cold to me	2.60
5	Appeared to understand my problems and worries	2.03
6	Was affectionate to me	2.44
11	Enjoyed talking things over with me	2.20
12	Frequently smiled at me	2.35
14	Did not seem to understand what I needed	1.90
16	Made me feel I wasn't wanted	2.53
17	Could make me feel better when I was upset	2.03
18	Did not talk with me very much	2.22
24	Did not praise me	2.30

Overprotection

3	Let me do those things I liked doing	.81
7	Liked me to make my own decisions	.78
8	Did not want me to grow up	1.23
9	Tried to control everything I did	1.10
10	Invaded my privacy	.90
13	Tended to baby me	1.22
15	Let me decide things for myself	.84
19	Tried to make me dependent on her/him	.83

Table E-1 (cont.)

Item Number	Item Content	Item Mean
20	Felt I could not look after myself unless she/he was around	.74
21	Gave me as much freedom as I wanted	1.41
22	Let me go out as often as I wanted	1.39
23	Was overprotective of me	1.30
25	Let me dress in any way I pleased	.73

Note: Items on the PBI were rated on a four point scale such that 4=Very Like, 3=Moderately like, 2=Moderately unlike, and 1=Very unlike.

Table E-2

Items on the Subscales of the Revised Dimensions of Temperament Survey

Item Number	Item Content	Item Mean
Activity Level - General		
2	I can't stay still for long	2.72
7	I move around a bit	2.75
11	If I have to stay in one place for a long time, I get restless	2.73
19	I often stay still for long periods of time	3.00
23	Even when I am supposed to be still, I get very fidgety after a few minutes	2.37
29	I never seem to stop moving	2.62
54	I never seem to be in the same place for long	2.69
Activity Level - Sleep		
32	I move a great deal in my sleep	2.72
38	I move a lot in bed	2.72
42	In the morning, I am still in the same place as I was when I fell asleep	2.89
46	I don't move around much at all in my sleep	3.00
Approach Withdrawal		
8	I can make myself at home anywhere	2.91
12	I usually move towards new objects shown to me	2.80
17	My first reaction is to reject something new or unfamiliar to me	3.15
26	On meeting a new person I tend to move towards him or her	2.66
30	It takes me no time at all to get used to new people	2.72
35	I move towards new situations	2.84
51	My first response to anything new is to move my head toward it	2.81

Table E-2 (cont.)

Items on the Subscales of the Revised Dimensions of Temperament Survey

Item Number	Item Content	Item Mean
Flexibility/Rigidity		
1	It takes me a long time to get used to a new thing in the home	3.21
13	It takes me a long time to adjust to new schedules	2.97
18	Changes in plans make me restless	2.66
44	When things are out of place, it takes me a long time to get used to it	2.96
49	I resist changes in routine	2.82
Mood		
3	I laugh and smile at a lot of things	3.53
14	I do not laugh or smile at many things	3.61
28	I smile often	3.44
34	I do not find that I laugh often	2.50
48	My mood is generally cheerful	3.23
50	I laugh several times a day	3.50
52	Generally I am happy	3.36
Rhythmicity - Sleep		2.23
4	I wake up at different times	2.28
25	I usually get the same amount of sleep each night	2.55
33	I seem to get sleepy just about the same time every night	2.26
36	When I am away from home I still wake up at the same time each time	2.06
41	No matter when I go to sleep, I wake up at the same time the next morning	

Table E-2 (cont.)

Item Number	Item Content	Item Mean
45	I wake up at the same time on weekends and holidays as on other days of the week	1.78

Items on the Subscales of the Revised Dimensions of Temperament Survey

Rhythmicity - Eating

Item Number	Item Content	Item Mean
16	I eat about the same amount for dinner whether I am home, visiting someone, or traveling	2.22
31	I usually eat the same amount each day	2.50
37	I eat about the same amount at breakfast from day to day	2.37
43	I eat about the same amount at supper from day to day	2.63
47	My appetite seems to stay the same day after day	2.48

Rhythmicity - Daily Habits

21	I take a nap, rest, or break at the same times every day	2.06
27	I often get hungry about the same time each day	2.82
39	I feel full of pep and energy at the same time each day	2.36
40	I have bowel movements at about the same time each day	2.10
53	The number of times I have a bowel movement on any day varies from day to day	2.18

Distractability

5	Once I am involved in a task, nothing can distract me from it	2.18
9	I can always be distracted by something else, no matter what I may be doing	2.46
15	If I am doing one thing, something else occurring won't get me	2.16
20	Things going on around me can take me away from what I am doing	2.17
24	I am hard to distract	2.01

Table E-2 (cont.)

Items on the Subscales of the Revised Dimensions of Temperament Survey

Persistence

Item Number	Item Content	Item Mean
6	I persist at a task until it's finished	2.60
10	I stay with an activity for a long time	2.75
22	Once I take something up, I stay with it	2.74

Note: Items on the DOTS-R were rated on a four point scale such that 1=usually false, 2=more false than true, 3=more true than false, and 4=usually true.

Table E-3

Items on the Subscales of the Student Adaptation to College Questionnaire

Academic Adjustment

Item Number	Item Content	Item Mean
3	I have been keeping up to date on my academic work	5.85
5	I know why I'm in college and what I want out of it	6.41
6	I am finding academic work at college difficult	4.21
10	I have not been functioning well during examinations	4.87
13	I am satisfied with the level at which I am performing academically	4.85
17	I'm not working as hard as I should at my coursework	3.95
19	My academic goals and purposes are well-defined	6.05
21	I'm not really smart enough for the academic work I am expected to be doing now	6.61
23	Getting a college degree is very important to me	8.11
25	I haven't been very efficient in the use of study time lately	3.47
27	I enjoy writing papers for courses	4.01
29	I really haven't had much motivation for studying lately	4.49
32	Lately I have been having doubts regarding the value of a college education	6.93
36	I am satisfied with the number and variety of courses available here at college	6.68
39	Recently I have had trouble concentrating when I try to study	4.04
41	I'm not doing well enough academically for the amount of work I put in	5.49
43	I am satisfied with the quality or the caliber of courses available at this college	6.47

Table E-3 (cont.)

Item Number	Item Content	Item Mean
44	I am attending classes regularly	7.10
50	I am enjoying my academic work at college	5.24
52	I am having a lot of trouble getting started on homework assignments	4.75
54	I am satisfied with my program of courses for this semester	6.51
58	Most of the things I am interested in are not related to any of my coursework at college	5.53
62	I am very satisfied with the professors I have now in my courses	6.07
66	I'm quite satisfied with my academic situation at college	6.82

Items on the Subscales of the Student Adaptation to College Questionnaire

Social Adjustment

Item Number	Item Content	Item Mean
1	I feel that I fit in well as part of my college environment	6.80
4	I am meeting as many people, and making as many friends, as I would like at college	5.81
8	I am very involved with social activities in college	5.27
9	I am adjusting well to college	6.68
14	I am satisfied with the level at which I am performing academically	4.72
16	I am pleased now about my decision to attend this college in particular	6.90
18	I have several close social ties at college	6.42

Table E-3 (cont.)

Item Number	Item Content	Item Mean
22	Lonesomeness for home is a source of difficulty for me now	6.54
26	I enjoy living in a college dormitory	7.11
30	I am satisfied with the extracurricular activities available at college	6.44
33	I am getting along very well with my roomate(s) at the college	6.58
37	I feel that I have enough social skills to get along well in the college setting	7.05
42	I am having difficulty feeling at ease with other people at college	6.48
46	I am satisfied with the extent to which I am participating in social activities at college	5.75
48	I haven't been mixing too well with the opposite sex lately	5.69
51	I have been feeling lonely a lot at college	5.54
56	I feel I am very different from other students at college, in ways I don't like	6.48
57	On balance, I would rather be home that here	6.53
63	I have some good friends or acquaintances at the college with whom I can talk about any problems I may have	7.19
65	I am quite satisfied with my social life at college	6.01

Table E-3 (cont.)

Items on the Subscales of the Student Adaptation to College Questionnaire

Personal-Emotional Adjustment

Item Number	Item Content	Item Mean
2	I have been feeling tense or nervous lately	4.75
7	Lately I have been feeling blue and moody a lot	5.10
11	I have felt tired much of the time lately	3.98
12	Being on my own, taking responsibility for myself, has not been easy	6.49
20	I haven't been able to control my emotions very well lately	5.49
24	My appetite has been good lately	6.63
28	I have been having a lot of headaches lately	6.36
31	I've given a lot of thought lately to whether I should ask for help from the counseling center, or from a psychotherapist outside of college	6.76
35	I've put on (or lost) too much weight lately	5.43
38	I have been getting angry too easily lately	5.49
40	I haven't been sleeping very well	5.43
45	Sometimes my thinking gets muddled up too easily	4.83
49	I worry a lot about my college expenses	5.02
55	I have been feeling in good health lately	5.94
64	I am experiencing a lot of difficulty coping with the stresses imposed upon me in college	5.35

Table E-3 (cont.)

Items on the Subscales of the Student Adaptation to College Questionnaire

Attachment/Goal Committment

Item Number	Item Content	Item Mean
1	I feel that I fit in well as part of my college environment	6.80
4	I am meeting as many people, and making as many friends, as I would like at college	5.81
15	I am pleased now about my decision to go to college	7.70
16	I am pleased now about my decision to attend this college in particular	6.90
26	I enjoy living in a college dormitory	7.11
34	I wish I were at another college or university rather than this one	6.41
36	I am satisfied with the number and variety of courses available here at college	6.68
42	I am having difficulty feeling at ease with other people at college	6.48
47	I expect to stay at this college for a bachelor' degree	6.49
56	I feel I am very different from other students at college, in ways I don't like	6.48
57	On balance, I would rather be home than here	6.53
59	Lately I have been giving a lot of thought to transferring to another college	6.44
60	Lately I have been giving a lot of thought to dropping out of college altogether and for good	7.99

Table E-3 (cont.)

Item Number	Item Content	Item Mean
61	I find myself giving considerable thought to taking time off from college and finishing later	7.72
65	I am quite satisfied with my social life at college	6.01

Note: Items on the SACQ were rated on a nine point scale such that 1=Doesn't apply to me at all and 9=Applies very closedly to me.

Table E-4

Items on the Subscales of the Perceived Social Support Scale

Item Number	Item Content	Item Mean
1	My friends give me the moral support I need	.92
2	Most other people are closer to their friends than I am	.82
3	My friends enjoy hearing about what I think	.91
4	Certain friends come to me when they have problems or need advice	.95
5	I rely on my friends for emotional support	.72
6	If I felt that one or more of my friends were upset with me, I'd just keep it to myself	.80
7	I feel that I'm on the fringe in my circle of friend	.83
8	There is a friend I could go to if I were just feeling down, without feeling funny about it later	.92
9	My friends and I are very open about what we think about things	.90
10	My friends are sensitive to my personal needs	.86
11	My friends come to me for emotional support	.89
12	My friends are good at helping me solve problems	.85
13	I have a deep sharing relationship with a number of people	.74
14	My friends get good ideas about how to do things or make thing from me	.83
15	When I confide in friends, it makes me feel uncomfortable	.81
16	My friends seek me out for companionship	.92
17	I think that my friends feel that I'm good at helping them solve problems	.92
18	I don't have a relationship with a friend that is as intimate as people's relationships with friends	.85

Table E-4 (cont.)

Item Number	Item Content	Item Mean
19	I've recently gotten a good idea about how to do something from a friend	.81
20	I wish my friends were much different	.92

Note: Items on the PSS-Fr were rate on a two point scale such that 1=yes, 0=no, and Don't Know=0.

Appendix F

Item-Total Statistics

Revised Dimensions of Temperment Survey

Table F-1 Activity Level - General

Activity Level - Sleep

Approach/Withdrawal

Table F-2 Flexibility/Rigidity

Mood

Rhythmicity - Sleep

Table F-3 Rhythmicity -Eating

Rhythmicity - Daily Habits

Distractibility

Table F-4 Persistence

Table F-1

Item-Total Statistics for the Dimensions of Temperament Survey - Revised

Activity Level - General

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
2	I can't stay still for long	16.16	13.00	.58	.36	.75
7	I move around a lot	16.13	13.34	.54	.33	.75
11	If I have to stay in one place for a long time, I get restless	16.15	13.69	.51	.28	.76
19	I often stay still for long periods of time	15.88	13.64	.55	.32	.75
23	Even when I am supposed to be still, I get very fidgety after a few minutes	16.51	14.15	.41	.21	.77
29	I never seem to stop moving	16.26	13.84	.50	.26	.76
54	I never seem to be in	16.19	13.86	.50	.27	.76
Activity Level - Sleep						
32	I move a great deal in my sleep	8.61	6.32	.77	.69	.70
38	I move a lot in bed	8.61	6.42	.73	.66	.73

Table F-1 (cont.)

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
42	In the morning, I am still in the same place as I was when I fell asleep	8.44	7.92	.44	.19	.86
46	I don't move around much at all in my sleep	8.33	7.18	.64	.42	.77
Approach Withdrawal						
8	I can make myself at home anywhere	16.98	11.58	.33	.13	.73
12	I usually move towards new objects shown to me	17.01	11.58	.40	.19	.71
17	My first reaction is to reject something new or unfamiliar to me	16.74	11.78	.36	.15	.72
26	On meeting a new person I tend to move towards him or her	17.22	11.01	.42	.21	.71
30	It takes me no time at all to get used to new people	17.17	10.17	.55	.33	.68
35	I move towards new situations	17.05	10.85	.55	.31	.68
51	My first response to anything new is to move my head toward it	17.08	10.68	.53	.31	.68

Table F-2

Items on the Subscales of the Revised Dimensions of Temperament Survey

Flexibility/Rigidity

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
1	It takes me a long time to get used to a new thing in the home	11.41	5.01	.33	.16	.57
13	It takes me a long time to adjust to new schedules	11.66	5.01	.41	.19	.53
18	Changes in plans make me restless	11.96	5.18	.30	.11	.59
44	When things are out of place, it takes me a long time to get used to it	11.66	4.69	.46	.22	.50
49	I resist changes in routine	11.80	5.2	.32	.14	.58
Mood						
3	I laugh and smile at a lot of things	20.64	12.67	.68	.46	.86
14	I do not laugh or smile at many things	20.56	12.73	.59	.48	.87
28	I smile often	20.72	11.68	.76	.59	.84

Table F-2 (cont.)

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
34	I do not find that I laugh often	20.67	.12.52	.59	.37	.87
48	My mood is generally cheerful	20.93	11.77	.71	.62	.85
50	I laugh several times a day	20.66	12.35	.64	.43	.86
52	Generally I am happy	20.81	11.85	.69	.61	.85
	Rhythmicity - Sleep					
4	I wake up at different times	10.92	9.75	.33	.12	.64
25	I usually get the same amount of sleep each night	10.87	9.30	.39	.17	.62
33	I seem to get sleepy just about the same time every night	10.60	10.96	.31	.12	.65
36	When I am away from home I still wake up at the same time each time	10.98	9.02	.48	.25	.59

Table F-2 (cont.)

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
41	No matter when I go to sleep, I wake up at the same time the next morning	11.09	10.01	.50	.27	.58
45	I wake up at the same time on weekends and holidays as on week days	11.37	9.92	.35	.18	.63

Table F-3

Items on the Subscales of the Revised Dimensions of Temperament Survey

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
Rhythmicity - Eating						
16	I eat about the same amount for dinner whether I am home, visiting someone, or traveling	9.98	9.47	.33	.13	.69
31	I usually eat the same amount each day	9.70	8.73	.54	.34	.61
37	I eat about the same amount at breakfast from day to day	9.83	9.23	.29	.10	.72
43	I eat about the same amount at supper from day to day	9.57	8.55	.56	.38	.60
47	My appetite seems to stay the same day after day	9.72	8.29	.59	.39	.59
Rhythmicity - Daily Habits						
21	I take a nap, rest, or break at the same times every day	9.45	6.30	.16	.04	.58

Table F-3 (cont.)

Item Number	Item Content	Mean If Item Deleted	Variance If Item Deleted	Scale Item-Total Correlation	Scale Squared Multiple Correlation	Corrected Alpha If Item Deleted
27	I often get hungry about the same time each day	8.69	6.10	.23	.09	.54
39	I feel full of pep and energy at the same time each day	9.15	5.53	.41	.19	.43
40	I have bowel movements at about the same time each day	9.41	5.16	.49	.26	.37
53	The number of times I have a bowel movement on any day varies from day to day	9.33	5.94	.28	.15	.50
Distractability						
5	Once I am involved in a task, nothing can distract me from it	8.80	5.24	.58	.35	.68
9	I can always be distracted by something else, no matter what I may be doing	8.52	5.66	.42	.19	.74
15	If I am doing one thing, something else occurring won't get me	8.82	5.94	.44	.23	.73
20	Things going on around me can take me away from what I am doing	8.81	5.27	.59	.35	.68
24	I am hard to distract	8.97	5.42	.54	.30	.70

Table F-4

Items on the Subscales of the Revised Dimensions of Temperament Survey

Item Number	Item Content	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
Persistence						
6	I persist at a task until it's finished	5.49	1.77	.42	.18	.61
10	I stay with an activity for a long time	5.34	1.79	.45	.22	.57
22	Once I take something up, I stay with it	5.24	1.42	.52	.27	.48

Note: Items on the DOTS-R were rated on a four point scale such that 1=usually false, 2=more false than true, 3=more true than false, and 4=usually true.

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